

Considering Color in Archival Digital Images of Works of Art



Julie Goforth

Johns Hopkins University

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jgoforth16@gmail.com

Considering Color in Preservation Digital Images of Works of Art





The Milkmaid, Johannes Vermeer, c. 1660, Rijksmuseum.



A Definitive Image

- A color record of the work at a certain point in time can be used as a benchmark for future comparison, conservation & restoration
- Most scholarly image possible

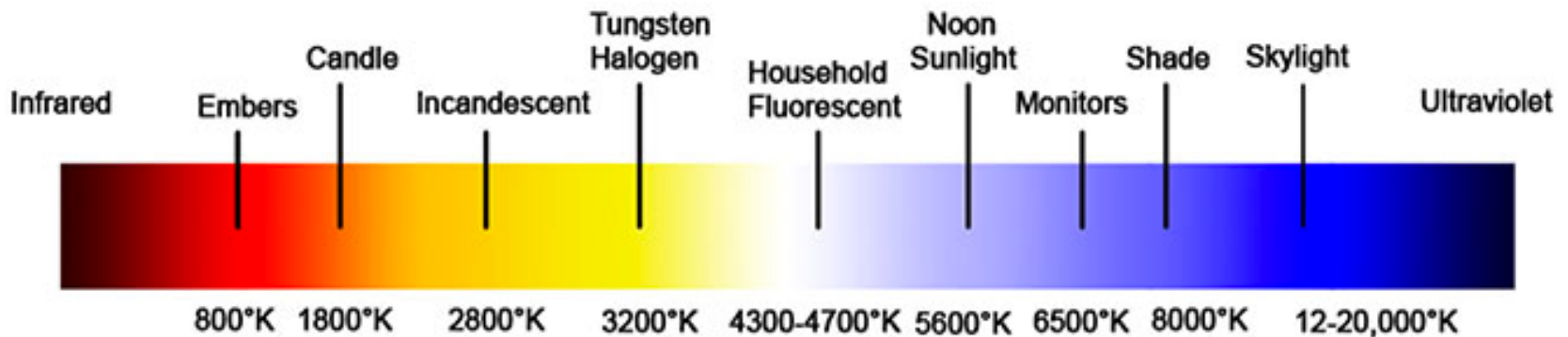
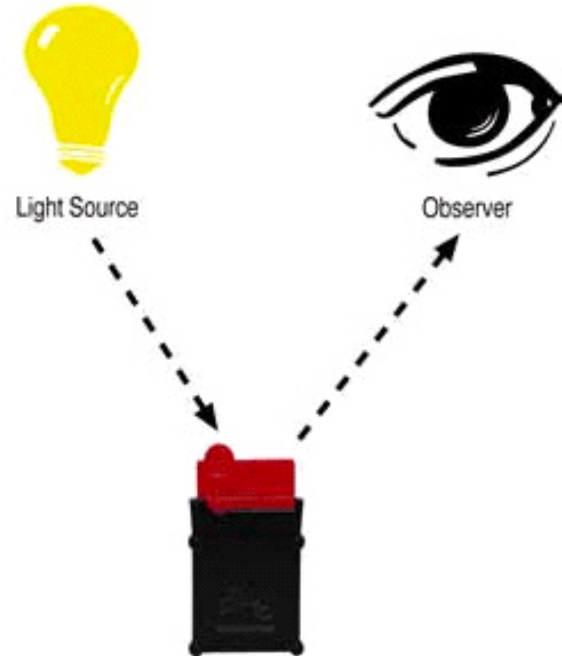


Collaboration for Color Results



The Imaging Process

- An Object
- An Observer (human or camera)
- A Light Source (color temperature and type of bulb is widely variable)

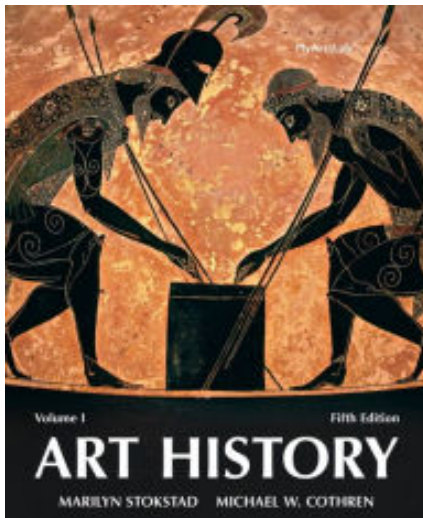


Determining the Color Temperature

- A collaboration of experts:
 - Art Historians
 - Conservationists
 - Imaging Specialists
 - Photographers



Imaging Specialist Getty Images



Setting/Location	Example	Illuminant Type	Color Temperature
Church	Byzantine icon	Candlelight	1800-2000K
Northern lit studio or plein air works	Vermeer, Monet	Daylight	5000-10000K Refer to geo-location
Artist preference	Rothko	'Low light'	unknown

Sample Color Temperature Chart

Two Separate Images

- High quality imaging is expensive & time consuming
- Will most likely not be made often
- Current standards of illumination will continue to be used so images will be suitable for all purposes
- Impractical to recreate different lighting scenarios during image capture



Spectral Imaging

- Does not depend on light source
- Expensive
- Lack of software and expertise to manage images
- Great amount of data generated
- Unfeasible for common use

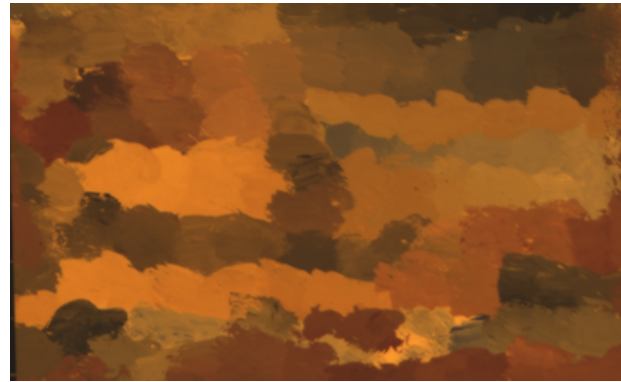


National Gallery of Art

RIT Spectral Images with Different Illuminants Applied



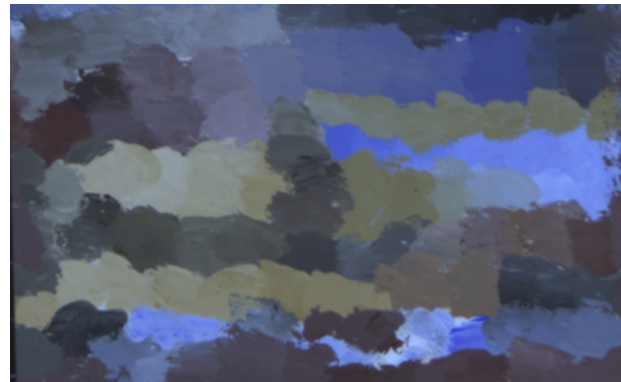
Original Image



D20 / 2000K / Candlelight



D50 / 5003K / Daylight



D120 / 12,000K / Bright Daylight, Hazy

Color Temperature Differences Based on Type of Illuminant

- Works known to have been created or meant to be displayed under illumination other than daylight such as candlelight, electric or torch light.
- Candlelight temperature is in the low end of the spectrum – around 2000K
- Warmer tones



Byzantine 13th Century, Enthroned Madonna and Child
c. 1250/1275, National Gallery of Art

Color Temperature Differences Based on Geographic Location

- Color temperature varies according to Geographic location
- Many artists use a studio illuminated by northern light



*Vermeer, Johannes, Dutch, 1632 - 1675
Woman Holding a Balance c. 1664, National Gallery of Art*

Digital Curators

- Keep image and documentation together
- Accessible
- Regular data checks
- Format migrations
- Secure storage



Conclusion

- The standard color temperature does not treat individual works individually.
- The Archival or preservation digital image should not be constrained by use or preference but should be an objective and scholarly representation of the work.
- Collaboration between knowledgeable experts is needed to determine the most likely color temperature for each work and to create the image.
- All of the factors used to create the image should be saved with the image as it goes into the long-term preservation life-cycle.



The Art of Painting, Vermeer, c. 1662 – 1668,
Kunsthistorisches Museum, Vienna