



LIGHT AS AN AGENT OF DETERIORATION

Agents of deterioration are factors that can damage or destroy works of art. By learning about them, we can come up with ways to recognise and slow down damage as well as treat damage that has already happened. Light is an agent of deterioration. It's a tricky one, because we need light to see a work of art, but light can also damage certain objects! Some artworks, like photographs and watercolours are very sensitive to light, while others like stone sculptures aren't very sensitive.

What is light?

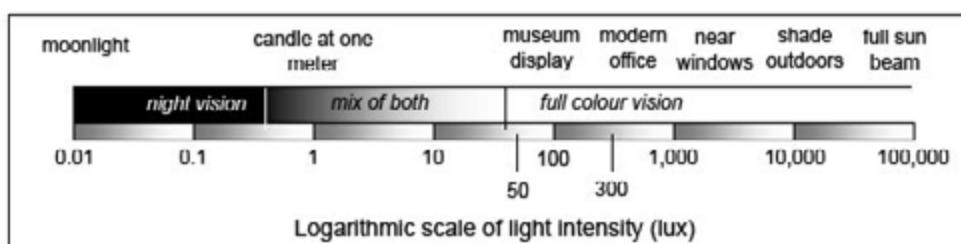
Light is a type of electromagnetic radiation that our eye can see. Light can come from the sun, fire and human-made light bulbs. There are other types of radiation at different wavelengths like ultraviolet and infrared that come from these same sources and damage artworks. However, we can't see these types of radiation.

How do we measure light?

We call the amount of light falling on a surface "illuminance" or "lux level" for short. Total darkness is 0 lux, while full sun is 100,000 lux. In and art museum like Agnes Etherington Art Centre, we aim for a lux level of 50–150 depending on what's on display.

How do we minimize light damage to artworks in museums?

There are many ways art conservators and museum staff can minimize light damage. The simplest is to reduce the amount of light falling on a surface (lux) and the amount of time an artwork is exposed to light. We do this by keeping artworks in the dark when they're not on display, and when they are on display, keeping the light in the galleries dim and making sure we have window treatments like solar screens, blinds and curtains.



Various lighting situations and the transition from colour vision to night vision, plotted on the lux scale. Source: Canadian Conservation Institute.



Want to learn more about how light affects different types of objects? Check out the Canadian Conservation Institute's Light Damage Calculator.

But what does light actually do to artworks?

This is a question for you to answer by conducting an experiment!
In this experiment you'll see how strong light affects an artwork on paper over time.

1. Examine the printed image of the artwork *Lychnis and Larkspur* by Daniel Fowler (page 3). Fill out a condition report (page 4). The condition should be "excellent" as it's a freshly printed image.

2. Place the printed image in a very sunny spot in your house, like a window ledge. Cover the left side of the image with a heavy book. This will ensure the sun doesn't reach this side. Keep the right side of the image uncovered so it receives all the sunlight. Leave this image in the sunny spot and don't move it. You'll check back in a month.

3. Make a guess or hypothesis:

How do you think light will affect this image over time? What changes will you see?

4. After one month remove the book and examine your image by comparing the two sides. In this experiment, the covered side is the "control" meaning it's unchanged by our experiment's variable, the sun. Fill out another condition report, making note of any changes to the right side of the image. After you've completed your report, place the image back in its original spot, with the book continuing to cover the left side and the right side exposed to the sun.


5. Repeat step four once a month until you notice a change in the image and can answer the question:

How did light affect the image over time? Describe the changes you see.



Works on Paper

CONDITION REPORT # ____

Accession Number:	20-042	
Object Name:	<i>Lychnis and Larkspur</i>	
Maker:	Daniel Fowler	
Date:	Unknown date	
Materials:	Watercolour on paper	
Measurements:	33.8 x 23.9 cm (original), 22.4 x 16.5 cm (replica)	
Provenance or Credit Line:	Purchase, Chancellor Richardson Memorial Fund and Wintario matching grant, 1977	

Overall Condition				
<input type="radio"/> Poor	<input type="radio"/> Fair	<input type="radio"/> Good	<input type="radio"/> Very good	<input type="radio"/> Excellent

Condition Overview		
Examination Method (with naked eye/microscope in normal/raking/UV light):	<input type="radio"/> Normal ✓ <input type="radio"/> Raking <input type="radio"/> UV	<input type="radio"/> Naked Eye ✓ <input type="radio"/> Magnification:

Overall Condition Assessment: <i>Do you see any of the following? If yes, put a check beside it</i>		
Surface:		
<input type="radio"/> Cloudy <input type="radio"/> Staining <input type="radio"/> Fading	<input type="radio"/> Dust <input type="radio"/> Grime residues <input type="radio"/> Creases	<input type="radio"/> Other:

Condition Notes: <i>Make note of any changes to the image since the last time you inspected it</i>
Surface:
Annotated Photo Documentation: <i>Circle any areas of the image that have changed since you last inspected it</i>



Examined by:	Date:
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