

Preservation of Photographs (The Enemies of Photography)

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The Better Image
Devoted to the Conservation and Preservation
of Art and Historic Photographs

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The Enemies

- Temperature
- Relative Humidity (RH)
- Light
- Air Quality
- Poor Quality Materials
- Inherent Vice
- Humans

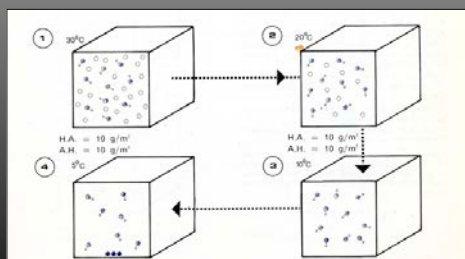
Temperature and Relative Humidity (RH)

- Interrelated
- RH has upper and lower limits
- Temperature has upper limits but no lower limit provided RH levels are maintained

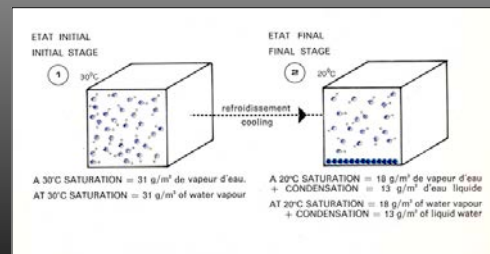
Effects of Temperature

- Raised temperatures increase reaction speeds
- Lower temperatures slow reaction speeds
- Temperature changes affect relative humidity

Absolute Humidity



Condensation



Cool Storage Vault



Effects of High RH

1. Chemical
2. Biological
3. Physical

Effects of High RH

1. Chemical
 - Oxidation of silver images
 - Deterioration of Supports
 - Yellowing of Albumen and Gelatin



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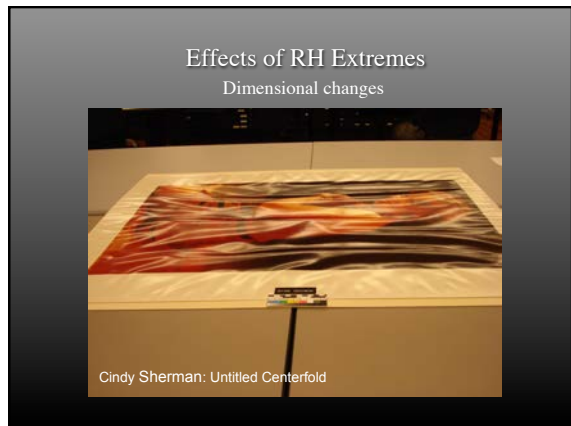
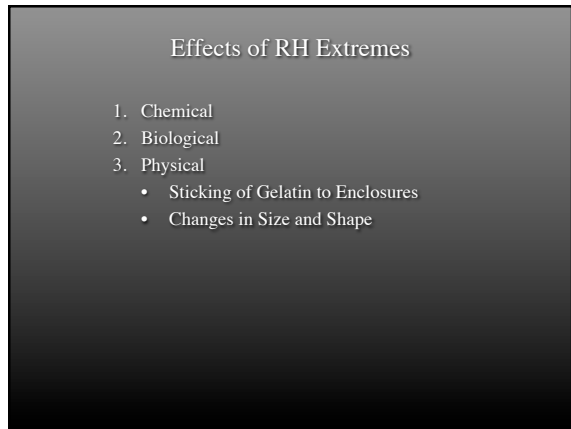
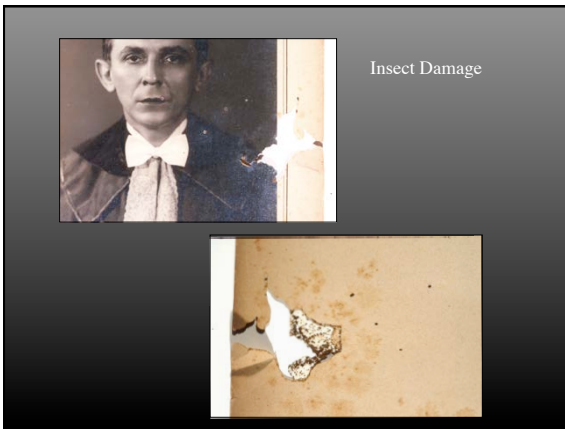
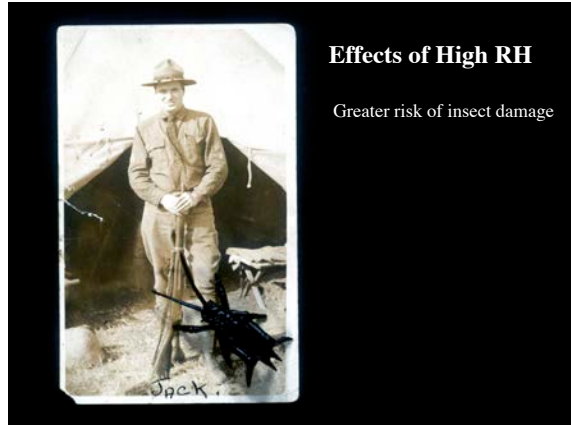
Effects of High RH

1. Chemical
2. Biological
 - Growth of Molds
 - Risk of Insect Damage



Effects of High RH





Recommended Storage

Cold Storage (40°F/4°C or below, 40%RH) for

- Color photographic materials
- Film-based negatives

Cool Storage (65°F/12°C or below, 40%RH)
for everything else



Modification



Light



Exhibition

- Increased handling
- Exposure to light
- Potential for changes in environment

Exhibition

What is the process type?
What is the condition of the photograph?
Can it be exhibited safely? Travel safely?
For how long? Under what conditions? Where?

Photography: Component Parts

Final Image Material

(silver, organic dyes, pigments, platinum, gold, iron salts)

Binder

(albumen, collodion, gelatin)

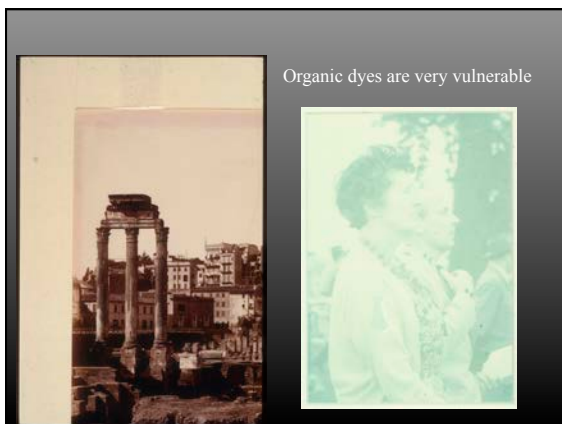
Support

(paper, glass, iron, copper, plastic, textile, wood, Springbok, etc)

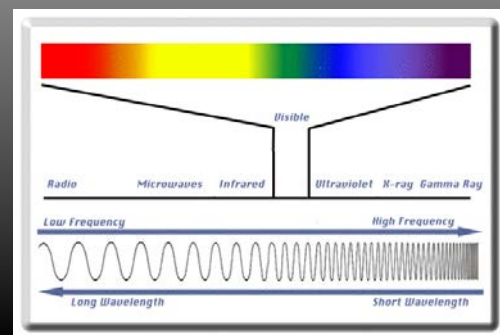


Organic components are vulnerable:

- Cellulose
- Albumen
- Gelatin and so on ...



Light



Light

All wavelengths are damaging!
Light damage is cumulative and irreversible.

Light

$$E = D \times I$$

(Exposure = Duration x Intensity)

Monitoring



Richard Stenman

Control of Exhibition Conditions

- Light types
- Light levels
- Exhibition duration

- Control environment on view and in transit

Control of Exhibition Conditions



Devices

The Metropolitan Museum of Art

National Gallery of Art



Devices



Musée d'Orsay

Use of Facsimiles



George Eastman House

Light: Recommended Levels

Sensitive Materials
3-5 footcandles

Hardier Materials
5-10 footcandles

Relatively Stable Materials
10-15 footcandles

Air Quality



Air Quality

Oxidizing gasses

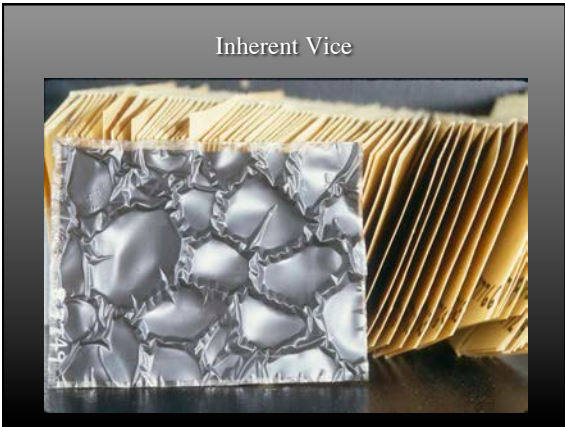
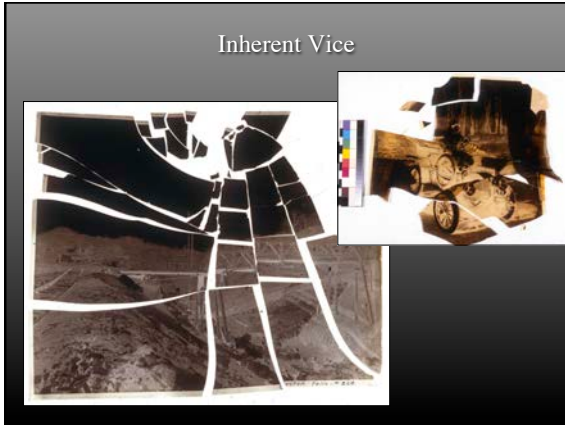


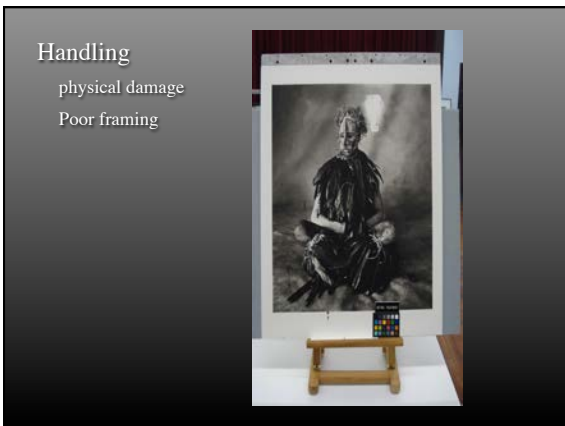
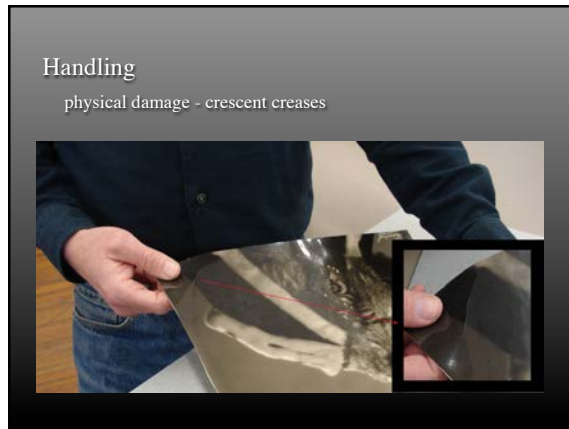
Particulate matter



Inherent Vice







you are not alone ...

Educate
Reach Out
Collaborate
Communicate
Advocate

The End