

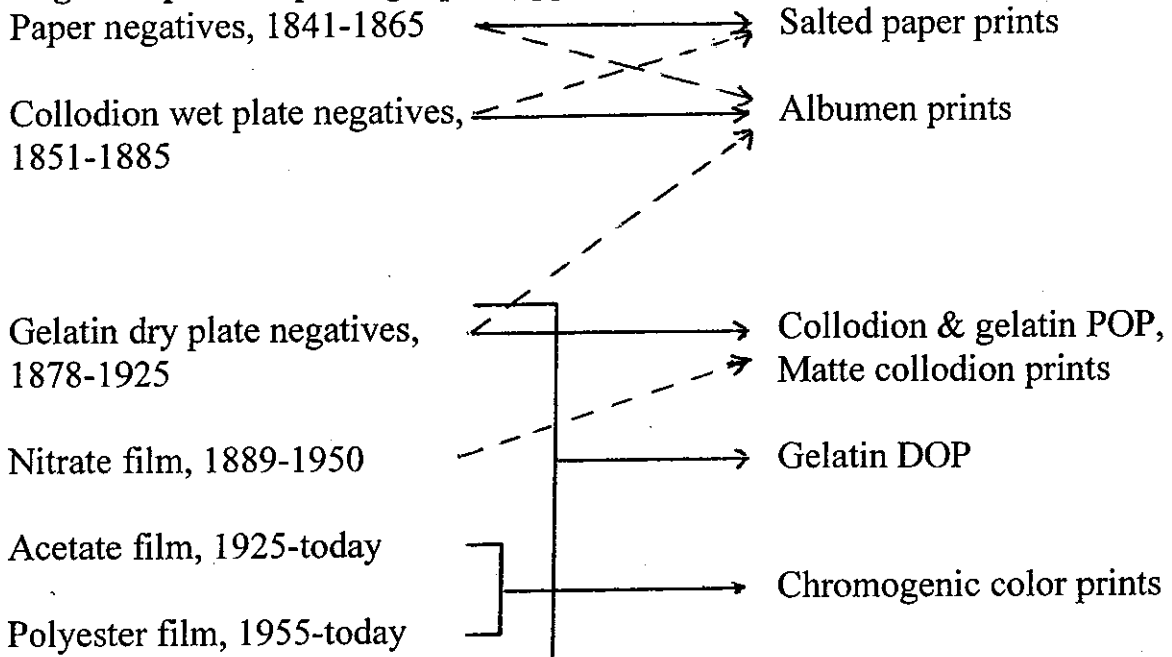
# HISTORY OF PHOTOGRAPHY

## Introduction: Paris, 1839, the Daguerreotype

### Direct positive photographs (approximate dates)

1. Daguerreotype: 1839-1860, silver/copper plate support
2. Ambrotype: 1851-1870, glass plate support
3. Tintype: 1854-1940, japanned-black iron plate support

### Negative-positive photographs (approximate dates)



### Exposure times for negatives

Paper negatives	1-20 minutes
Collodion wet plate negatives	5 seconds-3 minutes
Gelatin dry plate negatives	less than 1 second-10 seconds

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(April, 2006)

## PRESERVING YOUR PHOTOGRAPHS

### **Watch your environment.**

- Temperature – cooler is better
- Relative humidity – below 60%
- Monitor conditions.
- Avoid damp basements or uncontrolled attics.
- Circulate ambient air.
- Avoid harmful fumes – cleaning solvents, construction adhesives.

### **Choose good quality storage materials.**

- Paper – acid free, no ground wood pulp, passed the PAT test
- Plastics – polyester, polypropylene, polyethylene; no acetates or PVC
- Archival quality boxes and storage cabinets
- Archival adhesives

### **Be careful about exhibition.**

- Exhibit copies whenever possible.
- Don't exhibit important photographs permanently.
- Avoid sunlight; keep light levels low.
- Keep objects away from heat sources and exterior walls.
- Be knowledgeable of the materials' susceptibility to light damage.

### **Be aware of inherent weaknesses in your materials.**

- Negatives – nitrate film, safety film
- Color photographs
- Ink jet images
- Resin coated black and white photographs
- Broken or fragile photographs

### **Additional information.**

- American Institute for Conservation, [info@aic-faic.org](mailto:info@aic-faic.org), (202) 452-9545
- Northeast Document Conservation Center (NEDCC), [nedcc.org](http://nedcc.org)
- Image Permanence Institute, [rit.edu/ipi](http://rit.edu/ipi)

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## EXHIBITION OF PHOTOGRAPHS

**Use copies whenever possible.**

**Do not display valuable photographs permanently.**

**Insure that the environment is safe.**

- Provide proper temperature and relative humidity.
- Ensure adequate security and fire protection.
- Do not permit food in exhibition areas.
- Avoid exterior walls, keep photographs away from heat sources.

**Keep light levels low.**

- Light damage is cumulative, the result of both time and intensity.
- Avoid sunlight.
- Ultraviolet light should be minimized by using appropriate filters.
- Know the photograph's susceptibility to light damage. In general:
  - 19<sup>th</sup> century material: 5-10 foot-candles (5 is recommended).
  - 20<sup>th</sup> century material (excluding color photographs): 10-15 foot-candles (10 is recommended).

**Provide proper protection for the photograph (mats, frames, cases).**

- Use safe, archival materials in contact with the object.
- Control materials surrounding the object – be careful when using wood, adhesives, and paint.
- Protect images adequately during travel – proper packing, control of relative humidity fluctuations, hinging concerns, proper handling during installation.
- Secure images safely into window mats. Allow room for swelling of the paper support. Hinging options include the following.
  - Japanese paper hinges – use only if necessary
  - Sink mats
  - Photo corners
  - Trimmed photo corners
  - Butterfly corners
  - Mylar sling – front or reverse options
  - V-strips – Japanese paper or polyester
  - 4-fold mounts

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## IDENTIFICATION OF PHOTOGRAPHIC PRINTS

### Photomechanical

- Letterpress Halftone: 1885 - ?, checkerboard pattern
- Photogravure: 1880 - ?, aquatint grain or grid screen pattern
- Collotype: 1870 - ?, worm pattern

### True Photographs

*One Layer Structure:* no binder, no baryta layer, paper fibers clearly visible, matte surface

- Salted Paper Print: 1840 – 1865, printed-out process, often faded
- Cyanotype: 1880 – 1920, blue image color
- Platinotype: 1880 – 1930, neutral image color, no fading

*Two Layer Structure:* binder layer present, no baryta layer, paper fibers visible through binder, some surface gloss

- Albumen Print: 1850 – 1920, often faded, highlight yellowing, printed-out process, fine crackle pattern in binder
- Carbon Print: 1860 – 1940, image relief, no fading, any image tone possible
- Woodburytype: 1866 – 1900, photomechanical, image relief, no fading, any image tone possible

*Three Layer Structure:* binder and baryta layer present, fibers partially or completely obscured

- Gelatin Printed-out Paper: 1885 – 1920, glossy surface
- Collodion Printed-out Paper: 1885 – 1920, often identical in appearance to gelatin POP, easily abraded
- Matte Collodion Printed-out Paper: 1894 – 1920, neutral image hue, no mirroring, no fading, easily abraded
- Gelatin Developed-out Paper: 1885 - present, neutral image hue, often mirrored in dark areas

### Years of Peak Popularity for Paper Photographs

1845 – 1855: Salted paper print

1855 – 1895: Albumen print

1895 – 1905: Collodion prints and gelatin POP

1905 – 1965: Gelatin DOP

1965 – today: Color photographs

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# Identification of Film-Base Photographic Materials: Flow Chart

This flow chart is designed to introduce film-base identification to those with little or no experience in this important preservation activity. Definite identification is often difficult even for experienced examiners, particularly of film-base materials in excellent condition. A reference collection of known film-base samples in various deterioration levels can be an invaluable resource. *Even if identification is uncertain, badly deteriorated film-base materials should be isolated from those in good condition.*

The identification procedures listed in this chart are divided into two categories, Examination and Destructive Testing. It is important to consider carefully your reasons for conducting a destructive test.

Please refer to "The Guidelines for Care and Identification of Film-Base Photographic Materials," *Topics in Photographic Preservation*, volume 5, for further information.

For each identification procedure mark the box that best describes your observations/results, and proceed according to the symbol following your selection. An arrow (→) means that identification is uncertain and the examiner should continue to the next step. A triangle (▼) means that identification is likely, but not certain, and further examination or testing should be considered. A square (■) indicates that the film-base is firmly identified.

Use ① to differentiate polyester from nitrate and acetates.  
Use ②-⑦ to differentiate nitrate from acetates.

## Examination

### ① Polarization Test

- |   |           |   |
|---|-----------|---|
| <input type="checkbox"/> red or green interference colors | Polyester | ■ |
| <input type="checkbox"/> no colors / uncertain            |           | → |

### ② Edge Printing

- |   |          |   |
|---|----------|---|
| <input type="checkbox"/> "Nitrate"        | Nitrate  | ■ |
| <input type="checkbox"/> "Safety"         | Acetates | ■ |
| <input type="checkbox"/> none / uncertain |          | → |

### ③ Dating Information

- |                                      |          |   |
|--------------------------------------|----------|---|
| <input type="checkbox"/> before 1920 | Nitrate  | ■ |
| <input type="checkbox"/> 1920-55     |          | → |
| <input type="checkbox"/> after 1955  | Acetates | ▼ |
| <input type="checkbox"/> uncertain   |          | → |

### ④ Notch Codes

For the two choices below, all three conditions must be met for definite identification; if not go to ⑤.

- |  |                                |                                   |          |   |
|--|--------------------------------|-----------------------------------|----------|---|
| <input type="checkbox"/> "V" 1st notch from edge             | <input type="checkbox"/> Kodak | <input type="checkbox"/> pre-1949 | Nitrate  | ■ |
| <input type="checkbox"/> "U" 1st notch from edge             | <input type="checkbox"/> Kodak | <input type="checkbox"/> 1925-49  | Acetates | ■ |
| <input type="checkbox"/> neither of the previous two choices |                                |                                   |          | → |

### ⑤ Deterioration Characteristics

- |  |          |   |
|--|----------|---|
| <input type="checkbox"/> none / uncertain        |          | → |
| <input type="checkbox"/> noxious smell           | Nitrate  | ■ |
| <input type="checkbox"/> vinegar smell           | Acetates | ■ |
| <input type="checkbox"/> yellowing               | Nitrate  | ▼ |
| <input type="checkbox"/> soft / sticky / adhered | Nitrate  | ▼ |
| <input type="checkbox"/> bubbles / crystals      | Acetates | ▼ |
| <input type="checkbox"/> channelling             | Acetates | ■ |

## Destructive Testing

*Do not conduct destructive testing unless you have been given proper instruction—you can harm yourself as well as your collection.*

### ⑥ Diphenylamine or Float Test

For materials in good condition either test is usually sufficient. Materials in poor condition may give misleading results.

#### Diphenylamine

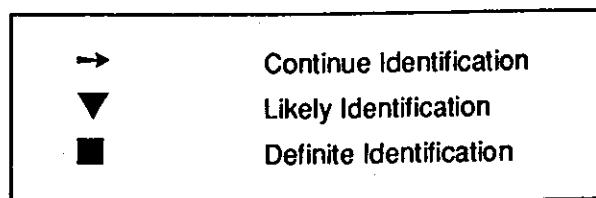
- |  |          |   |
|--|----------|---|
| <input type="checkbox"/> intense blue          | Nitrate  | ■ |
| <input type="checkbox"/> faint blue / no color | Acetates | ■ |
| <input type="checkbox"/> uncertain             |          | → |

#### Float

- |                                    |          |   |
|------------------------------------|----------|---|
| <input type="checkbox"/> top       | Acetates | ■ |
| <input type="checkbox"/> bottom    | Nitrate  | ■ |
| <input type="checkbox"/> uncertain |          | → |

### ⑦ Burn Test

- |  |          |   |
|--|----------|---|
| <input type="checkbox"/> burns down, yellow flame          | Nitrate  | ■ |
| <input type="checkbox"/> difficult to ignite, burns slowly | Acetates | ■ |



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