

- History and Historic Photographic Technologies
- Archival Management and Preventive Conservation

***Photography as an “object”***

# What is a Photograph?

- An Image
  - Light Sensitivity of Chemical Compounds
    - Silver Salts
    - Iron Salts
    - Chromium Salts
- A substrate

Salts (Chemistry): an ionic compound which is made up of two groups of oppositely charged ions (positive and negative)



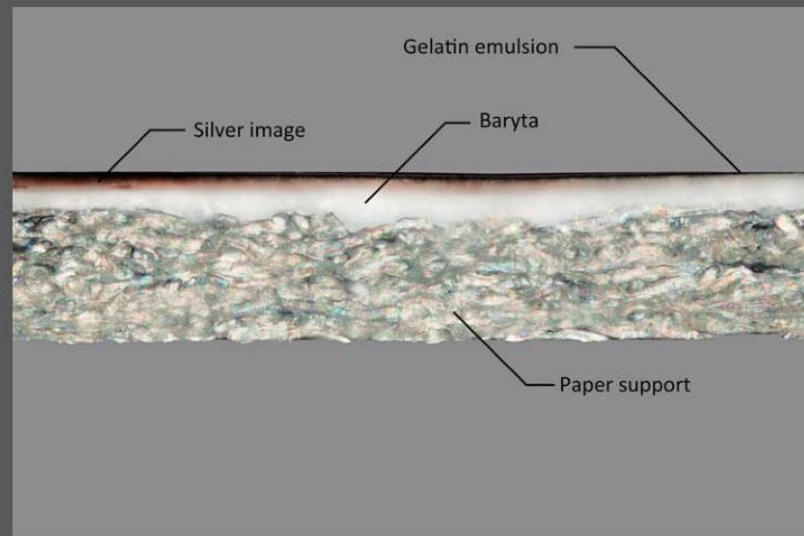
Chromium Salt: Potassium dichromate



# Building Blocks of a Photograph

- Image Material
- Support
- Image Binder\*
- Support Coating\*

\*not always present



# Image Material

- Metal
  - Silver
  - Gold
  - Platinum
- Pigment



## Supports

- Common
  - Paper
  - Metal
  - Glass
- Less common
  - Cloth
  - Ceramic
  - Leather



# Image Binder

- Materials
  - Albumen
  - Collodion
  - Gelatin
- Purpose
  - To hold and suspend the image material above support
  - Sharper image
- Properties
  - Transparent
  - Ideal for suspensions
  - Each binder has specific properties



Albumen print





# Building Blocks of Photographic Prints

One layer

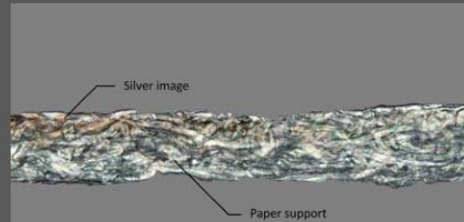


Image material  
Support

Two layers

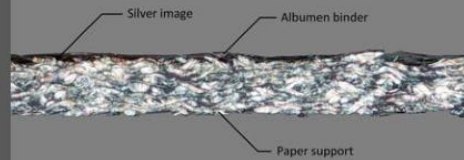


Image material in Binder  
Support

Three layers

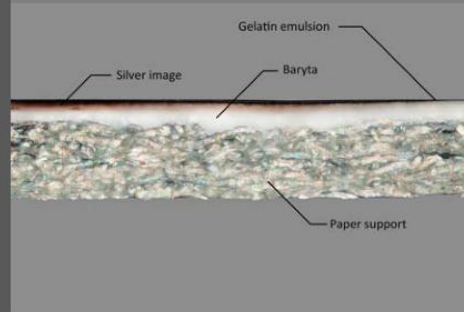


Image material in Binder  
Baryta  
Support





# Types of Photographs

- Negative
- Print
- Positive Transparency
- Direct Positive



# Negative

A tonally reversed image on a transparent support.



# Negative

A tonally reversed image on a transparent support.

- Glass plate
  - Flexible strip film
  - Sheet film
- Black and White  
And  
Color



35mm negative on cellulose nitrate support



# Print

A positive image on an opaque support



# Positive Transparency

A positive image on a transparent support

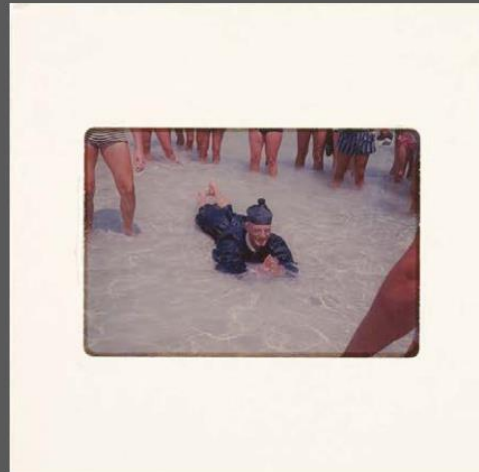


# Positive Transparency

A positive image on a transparent support

- Lantern slides
  - 35 mm slides
  - 4x5 or 8x10 transparencies
- Black and White  
And  
Color

35mm chromogenic slide  
transparency



## Direct Positive

A positive images made directly in the camera.

- “Direct positive” images are technically negatives.
- Daguerreotypes
- Ambrotypes
- Tintypes



# Silver DOP

## Developing Out (DOP)



- Negatives and some Direct Positives 1839-1880s
- Excess of halide
- Short exposure
- Latent image is formed (invisible)
- Reduced by chemical reaction to metal
- Produces large particles
- Creamy white highlights, black or brown shadows/midtones





# Silver DOP

## Processes

- Calotype
- Paper negative

## Type

- Negative

## Image

- Silver

## Support

- Paper

Paper negative, 1840-1865



Edouard Denis Baldus  
Orange (Vaucluse) - Face sud, arc de triomphe en 1851  
Paper Negative  
Musée D'Orsay



# Silver DOP

## Process

- Wet plate collodion

## Type

- Negative
- Positive Transparency

## Image

- Silver

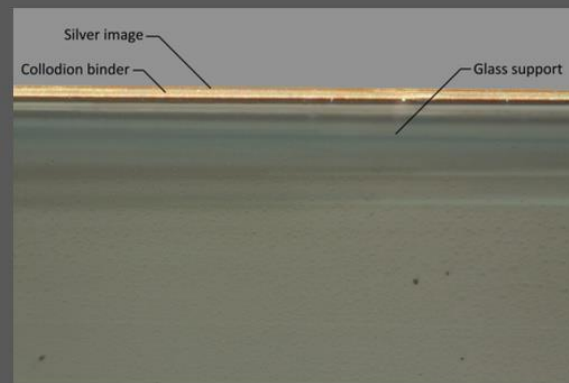
## Supports

- Glass

## Binder

- Collodion

Wet Plate Collodion 1851-1885



# Silver DOP

## Processes

- Ambrotype, tintype

## Type

- Direct Positive

## Image

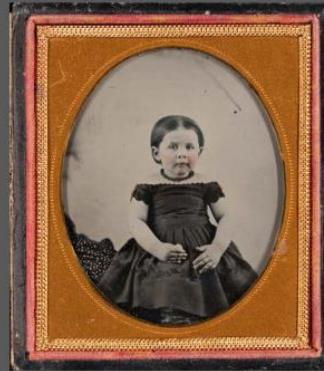
- Silver

## Supports

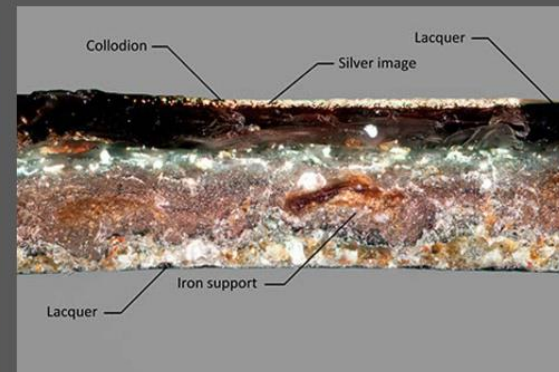
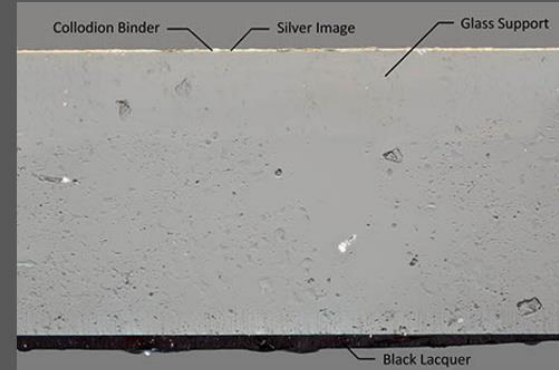
- Glass
- Metal

## Binder

- Collodion



Ambrotype, 1854-1865



Tintype 1856-1920



# Silver DOP

## Process

- Gelatin dry plate

## Type

- Negative
- Positive transparency

## Image

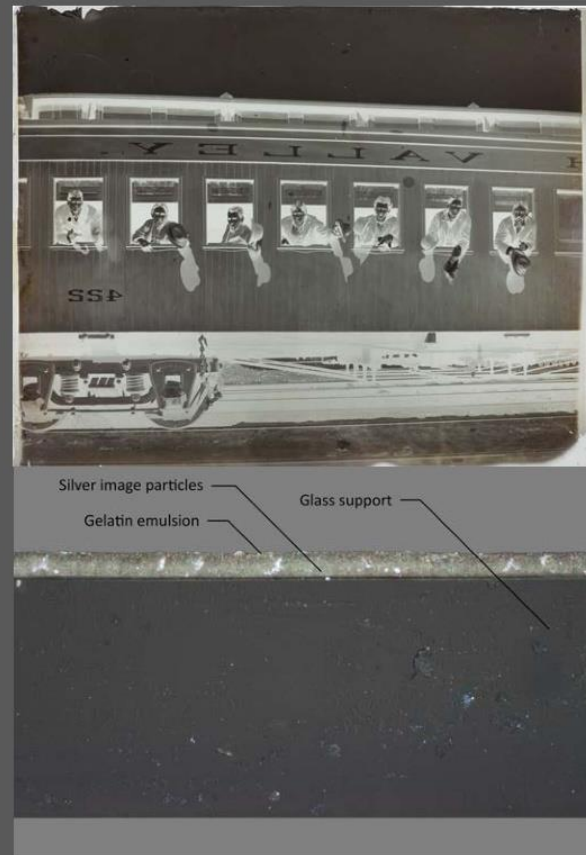
- Silver

## Support

- Glass

## Binder

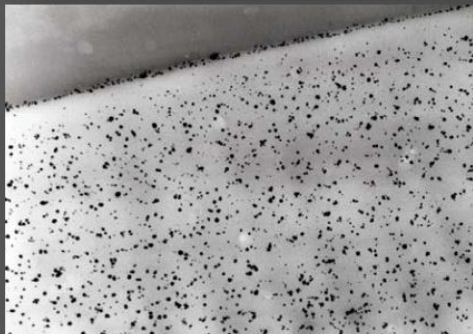
- Gelatin



Gelatin Dry Plate, 1880-1925



# Silver POP



## Printing Out (POP)

- Prints only, 1839-1900
- Excess of silver
- Silver salt reduced to silver by light alone
- Long exposure
- Small, round particles
- Toned with gold and/or platinum
- Warm image tone: Purple/Red



## Silver POP

- Salted paper, 1840-1855
- Albumen, 1860-1895
- Collodion POP, 1885-1910
- Gelatin POP, 1885-1910
- Matte Collodion, 1895-1910



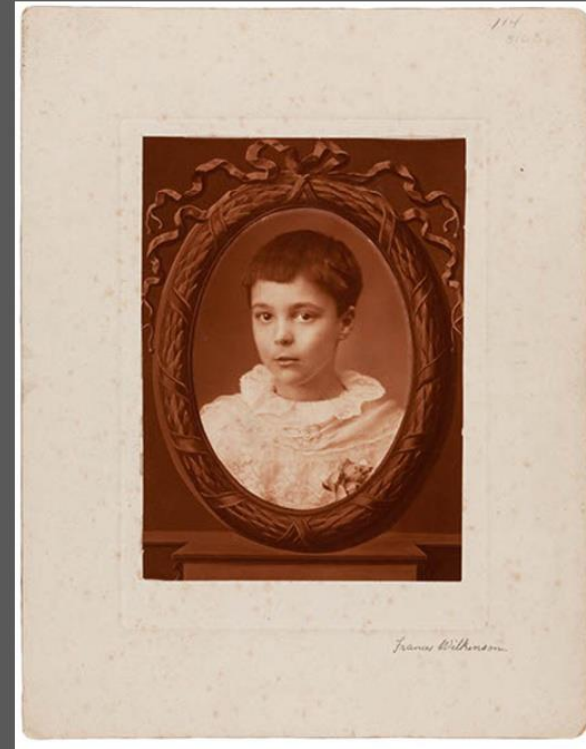
# Chromium

## Dichromated Colloid

- Carbon (1868-1940)
- Direct Carbon (1900-1939)
- Gum Dichromate (1894-1930s)

More info:

- [www.graphicsatlas.org](http://www.graphicsatlas.org)



# Chromium

## Process

- Carbon

## Image Material

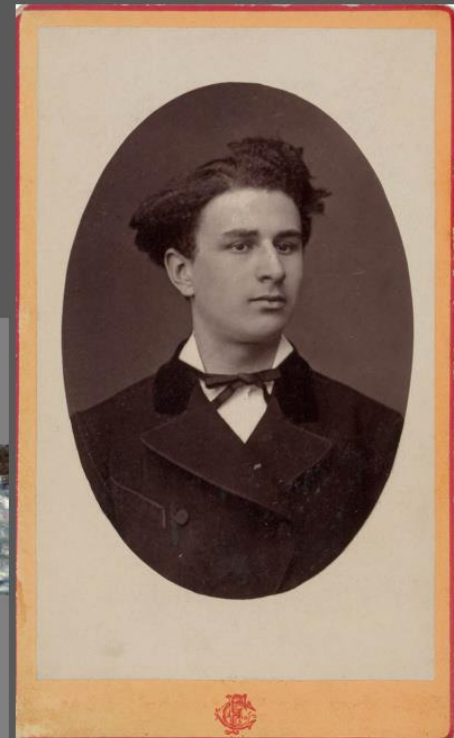
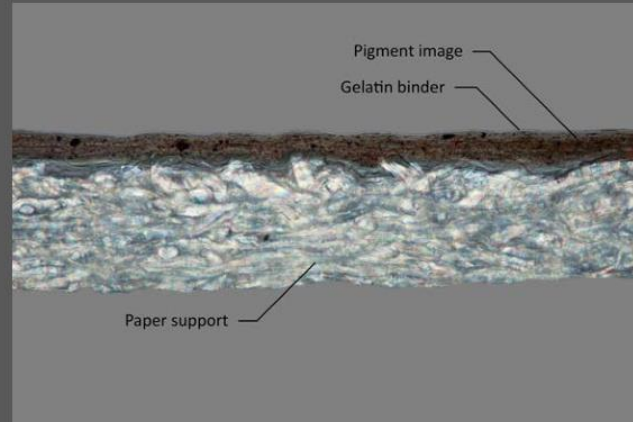
- Pigment

## Binder

- Gelatin

## Support

- Paper





# Iron

- Cyanotype, 1842-1950
- Platinum, 1880-1930



Cyanotype

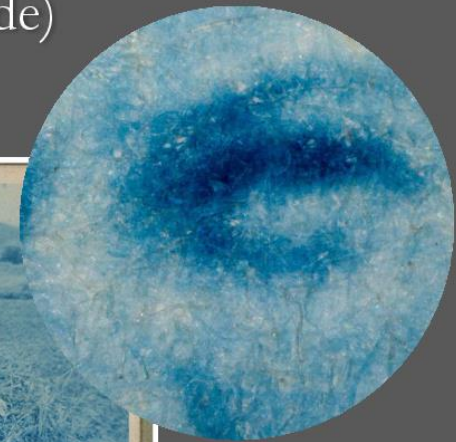
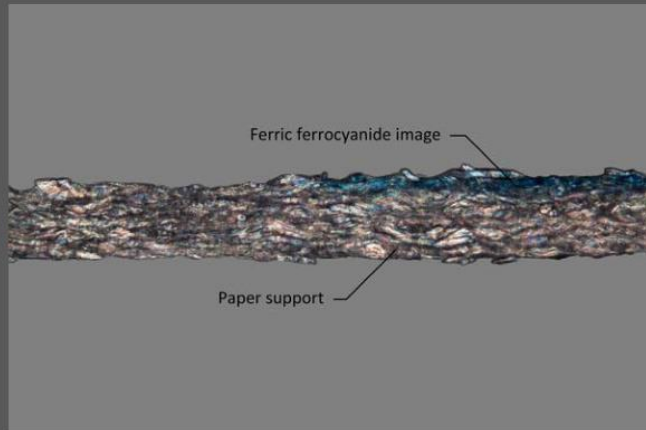


# Iron

Process: cyanotype

Support: paper

Image Material: Prussian blue (ferric ferrocyanide)



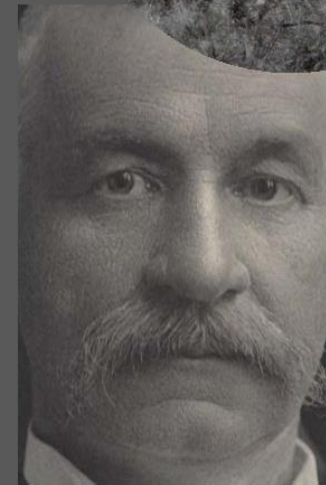
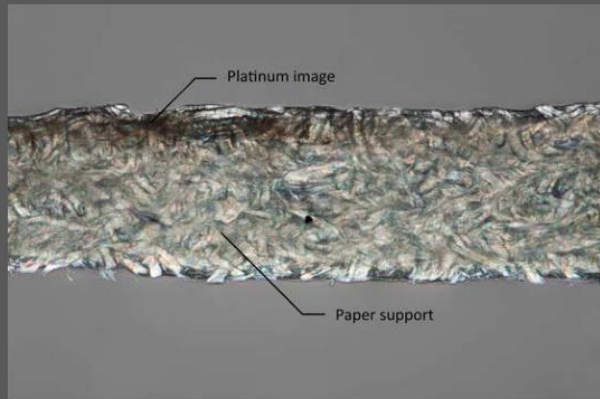
# Iron

Process: platinum

Support: paper

Image Material: platinum

50x magnification



# Resources

## Web Resources

- Graphics Atlas
  - [www.graphicsatlas.org](http://www.graphicsatlas.org)
- George Eastman Museum Photographic Processes Series
  - YouTube
- Lingua Franca: A Common Language for Conservators of Photographic Materials
  - iTunes App
- The Atlas of Analytical Signatures of Photographic Processes
  - [www.getty.edu/conservation/publications\\_resources/pdf\\_publications/atlas.html](http://www.getty.edu/conservation/publications_resources/pdf_publications/atlas.html)

## Print Resources

- *Care and Identification of 19<sup>th</sup> Century Photographic Prints* by James Reilly
- *Photographs of the Past: Process and Preservation* by Bertrand Lavedrine
- *In the Darkroom: An Illustrated Guide to Photographic Processes Before the Digital Age* by Sarah Kennel

Slides from

