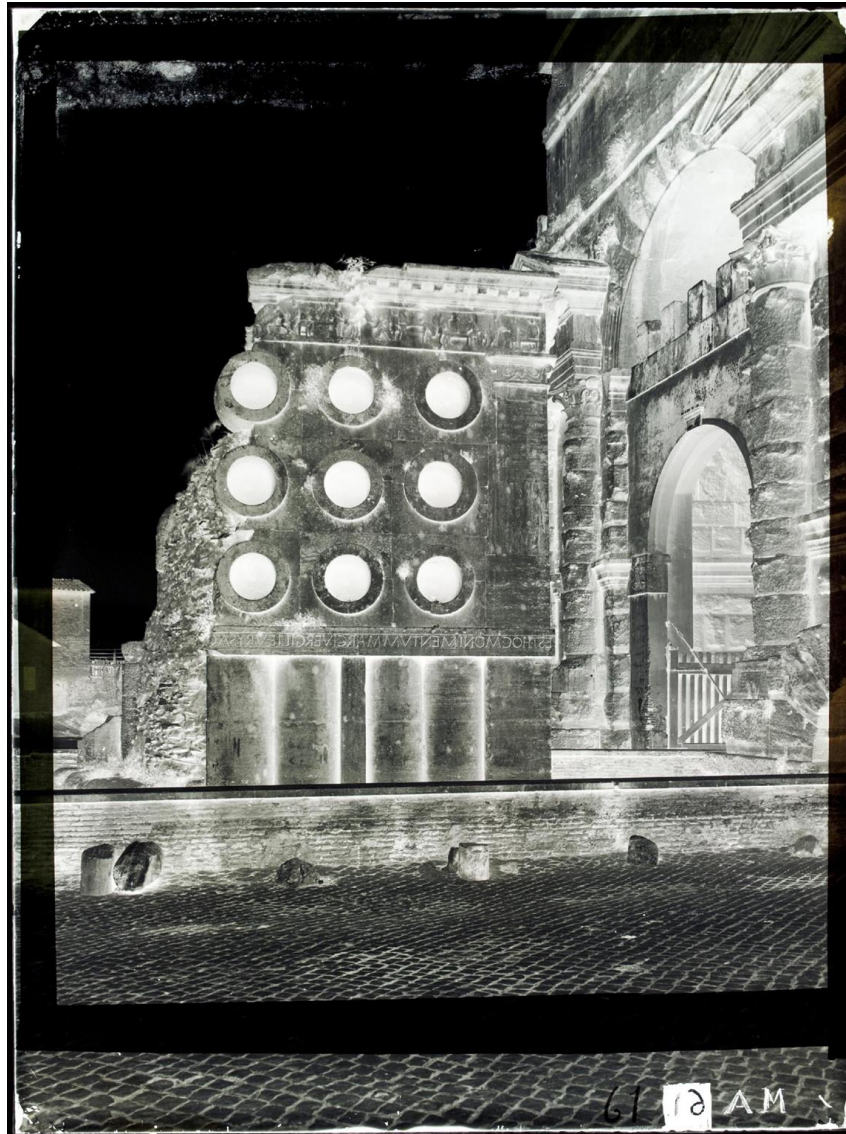


- History and Historic Photographic Technologies
- Archival Management and Preventive Conservation

Historical photographic techniques: description and identification. Gelatin dry plate negative and gelatine silver print, plastic-based negative.



Gelatin dry plate
negative



Silver DOP

Process

- Gelatin dry plate

Type

- Negative
- Positive transparency

Image

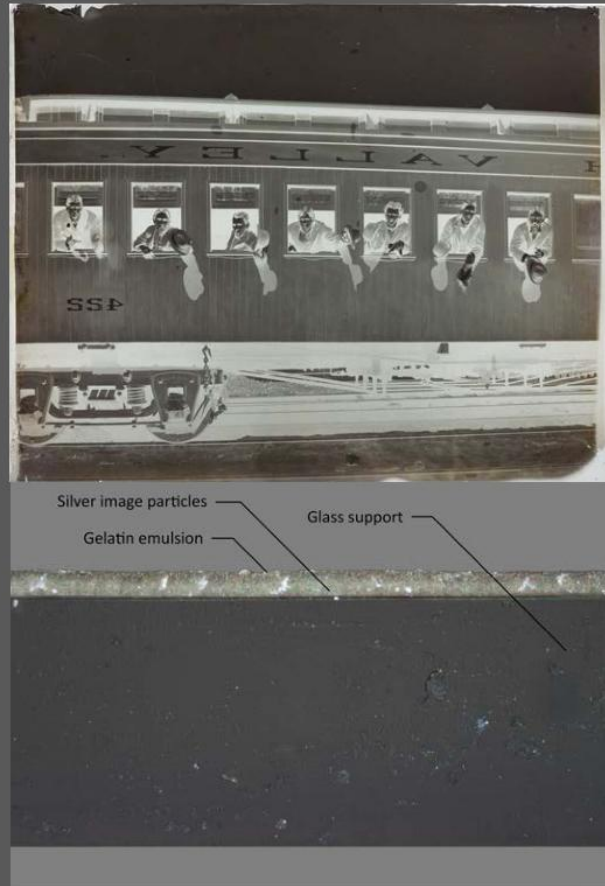
- Silver

Support

- Glass

Binder

- Gelatin



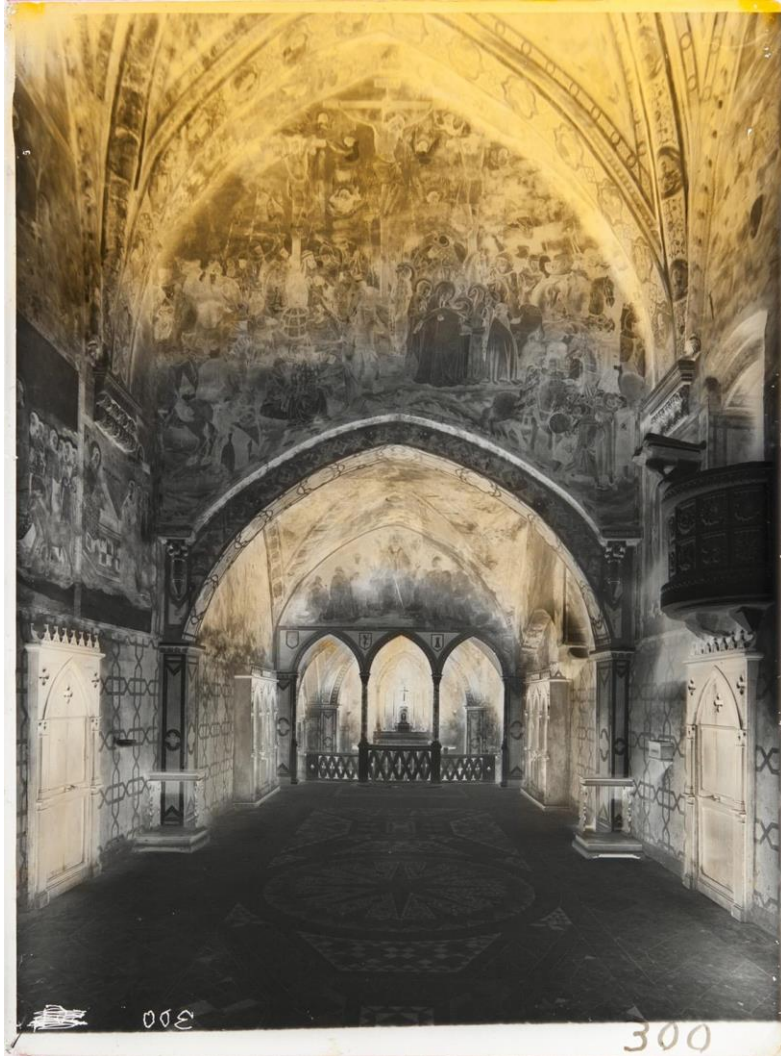
Gelatin Dry Plate, 1880-1925



Historical photographic techniques: description and identification



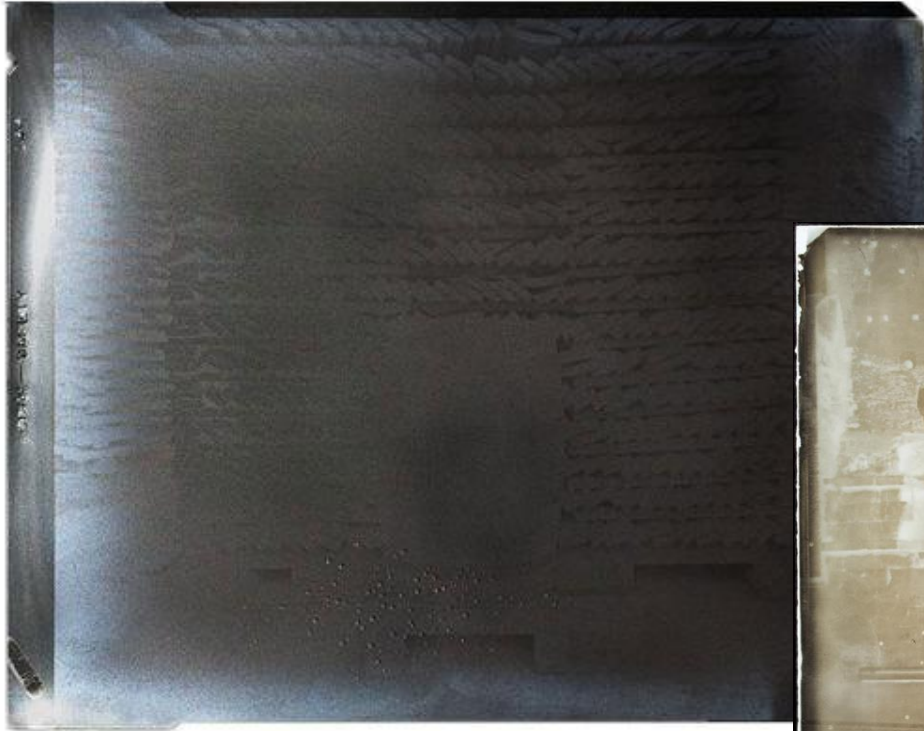
Historical photographic techniques: description and identification



Historical photographic techniques: description and identification

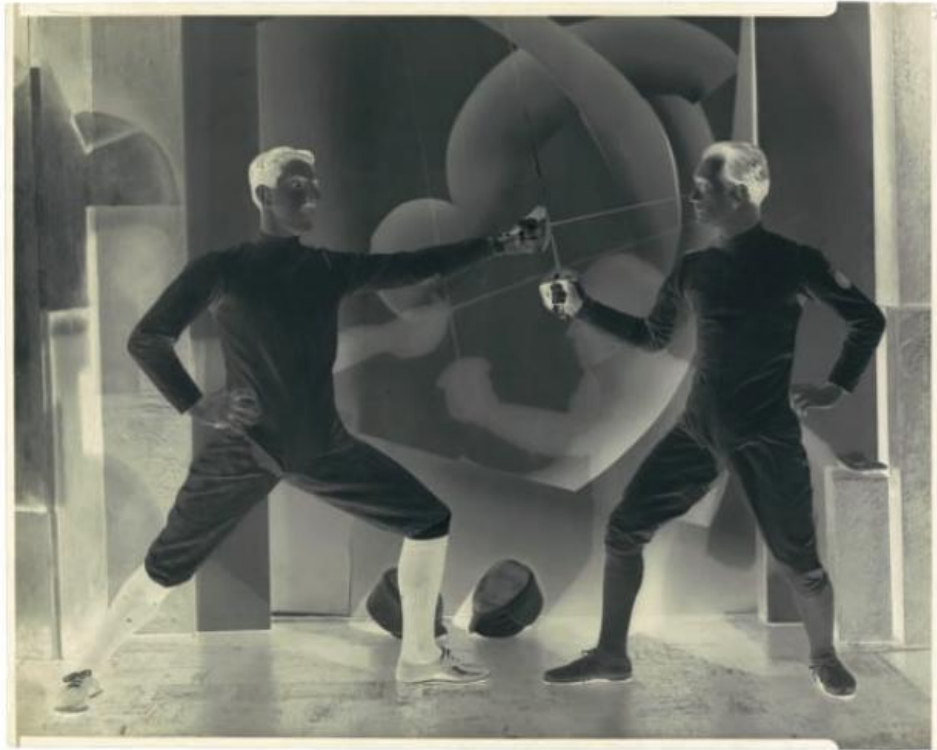


Historical photographic techniques: description and identification



Historical photographic techniques: description and identification





Nitrate and acetate film



Historical photographic techniques: description and identification



Historical photographic techniques: description and identification



Historical photographic techniques: description and identification



Historical photographic techniques: description and identification



Level 1
No deterioration.



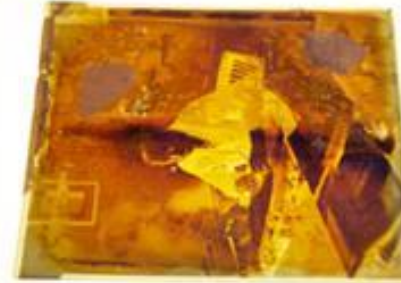
Level 2
The negatives begin to yellow and mirror.



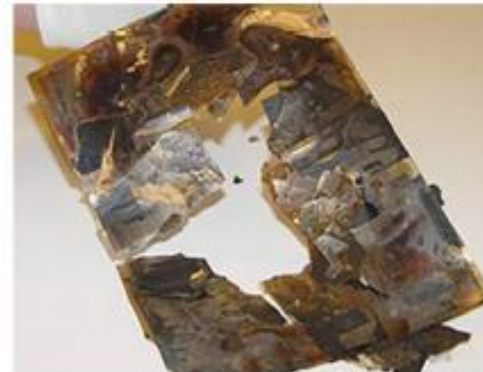
Level 3
The film becomes sticky and emits a strong noxious odor (nitric acid).



Level 4
The film becomes an amber color and the image begins to fade.



Level 5
The film is soft and can weld to adjacent negatives, enclosures and photographs.



Level 6
The film degenerates into a brownish acid powder.



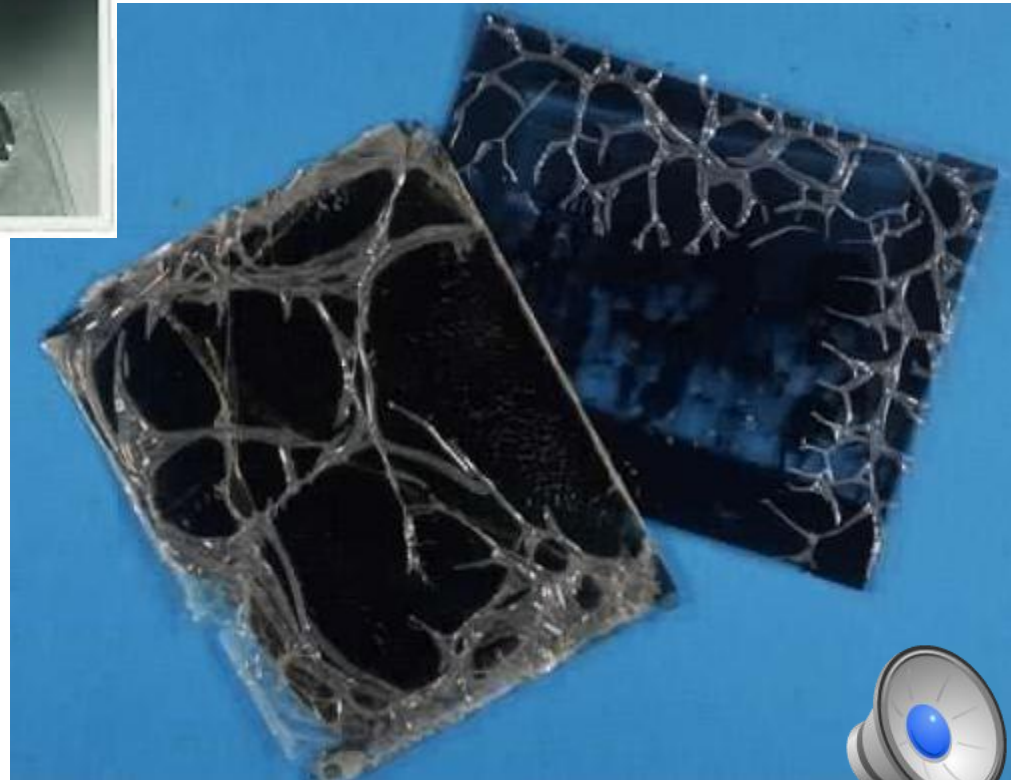
Historical photographic techniques: description and identification



Historical photographic techniques: description and identification



Historical photographic techniques: description and identification



Historical photographic techniques: description and identification



Historical photographic techniques: description and identification



Historical photographic techniques: description and identification



Level 1
No deterioration.

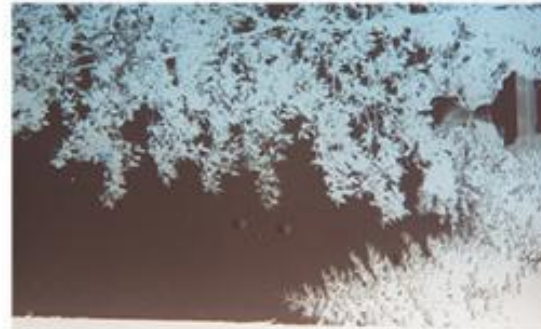


Level 2
The negatives begin to curl and they can turn red or blue.

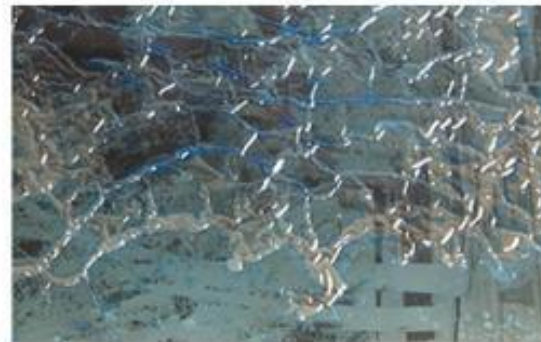
Level 3 (not shown)
The onset of acetic acid (vinegar smell); also shrinkage and brittleness.



Level 4
Warping can begin.



Level 5
The formation of bubbles and crystals in the film.



Level 6
The formation of channeling in the film.



Historical photographic techniques: description and identification

Amber/brown discoloration



Silver image oxidation



Soft and sticky gelatin

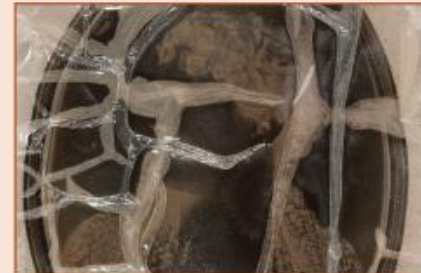


It is nitrate!

Vinegar smell



Channeling



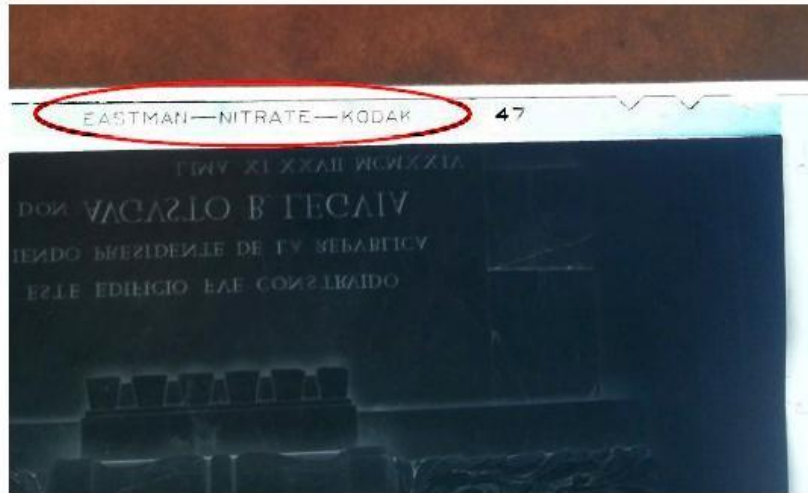
Plasticizer exudation



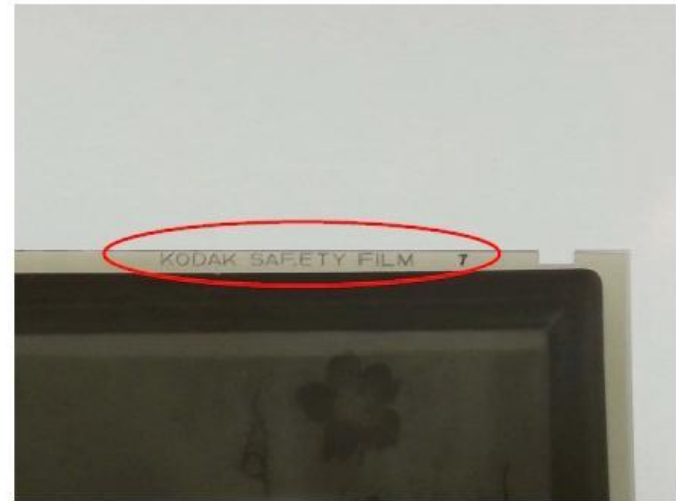
It is acetate!



Historical photographic techniques: description and identification



nitrate



acetate



Nitrate Kodak notch code (at right) and printing



Acetate Kodak notch code (at right) and printing



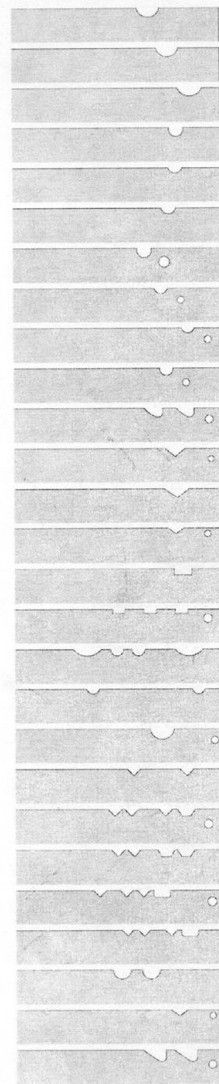
Planfilm-Kerbungen

Nitratfilme

	1924-30 color
	Eastman-Nitrate-Kodak 45
1945 - 1960	
1920 - 1930	Eastman-Kodak 44 Eastman-Kodak 31
1949 - 1950	
1945 - 1960	
1950 - 1954	
1934	Eastman-Nitrate-Kodak 75
1925 - 30	Eastman-Nitrate-Kodak 71
1929 - 37	
1943 - 1944	
1918	
1954	
1944	
50er Jahre	
50er Jahre	
nach 1945	15 Kodak oder 12 Kodak
nach 1945	14 Kodak

Bei den Datierungen handelt es sich um Aufnahmezeiten.
Diese können vom Herstellungszeitraum abweichen.

Acetatfilme



Zusammengestellt von Horst Fenchel, Bildarchiv Foto Marburg - Heuselt: www.klassimmo.de



notch codes



EASTMAN KODAK COMPANY NITRATE FILM TYPES & DATES of DISCONTINUATION

X-ray films	1933
135mm film	1938
Kodak professional portrait & commercial sheet film	1939
Aerial film	1942
Film packs	1949
Film rolls (616, 620, 828, etc.)	1950
Motion picture film	1951

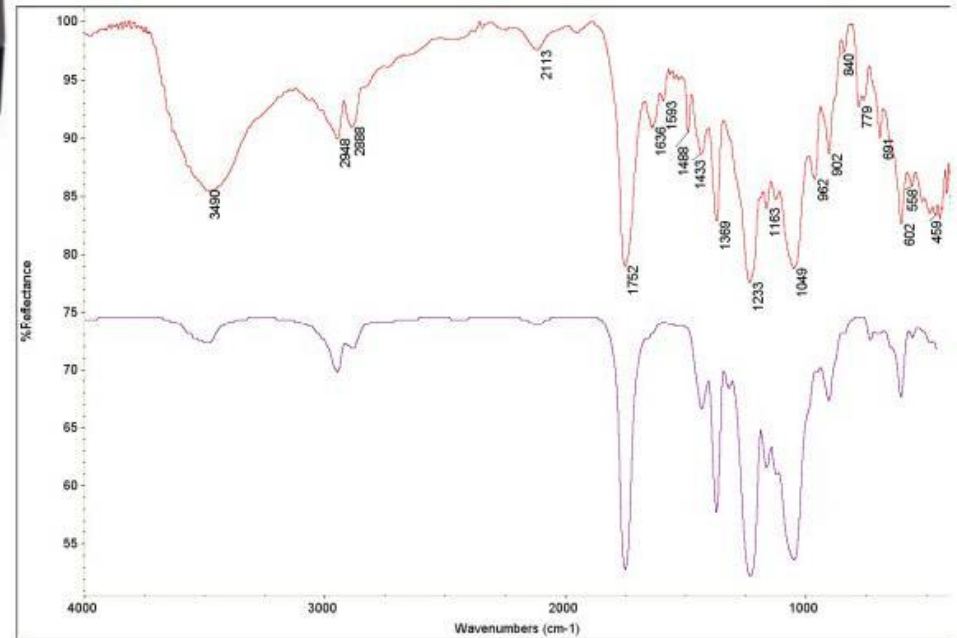


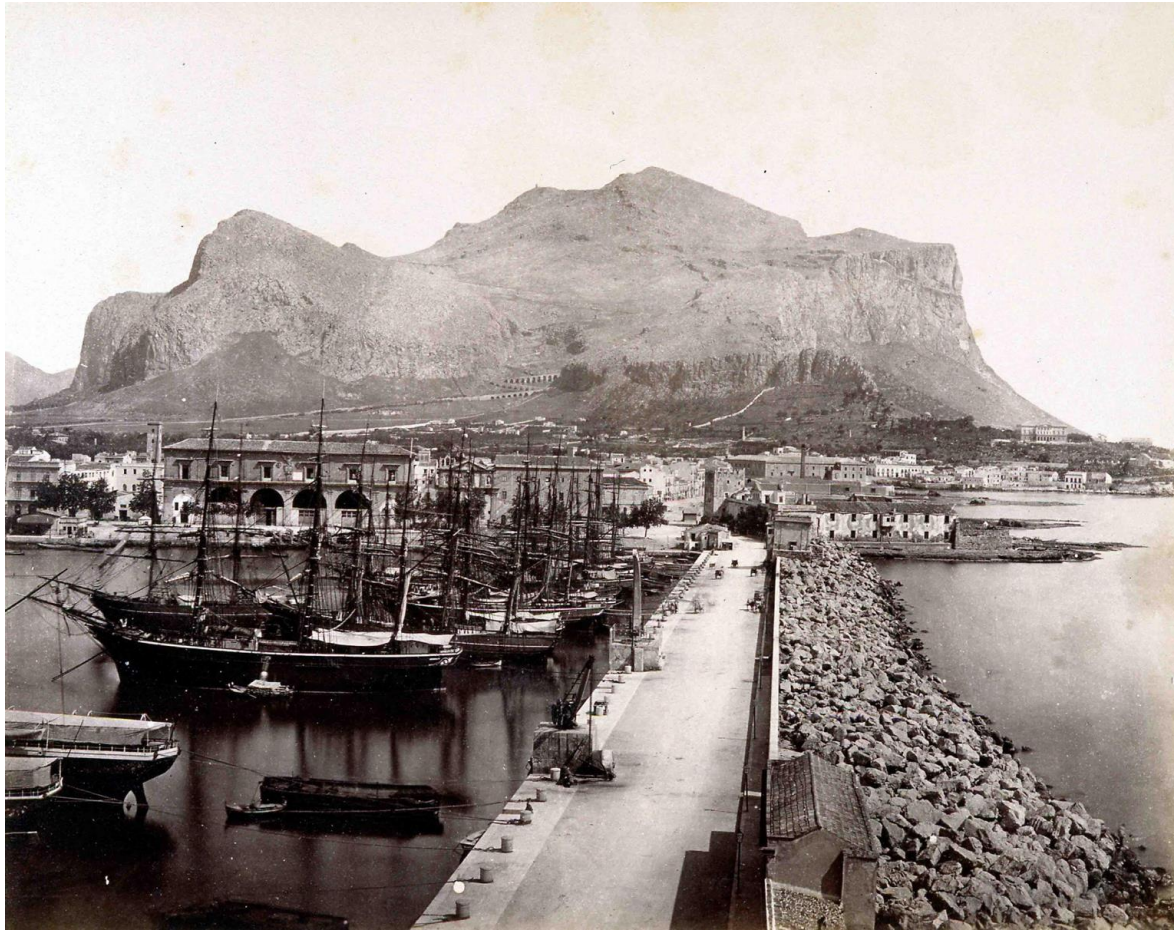
TYPES of ACETATE⁶⁷ PRODUCED AFTER 1925

Acetate Type	Dates	Film Type	Manufacturers
Diacetate	ca. 1923 – ca. 1955	Roll, sheet	Agfa, Ansco, Dupont, Defender, Kodak
Acetate propionate	1927 – ca. 1949	Roll	Kodak
Acetate butyrate	1936 – today	Sheet, X-ray, aerial maps ⁶⁸	Kodak
Triacetate	ca. 1950 – today	Roll	Almost every film manufacturer



Historical photographic techniques: description and identification



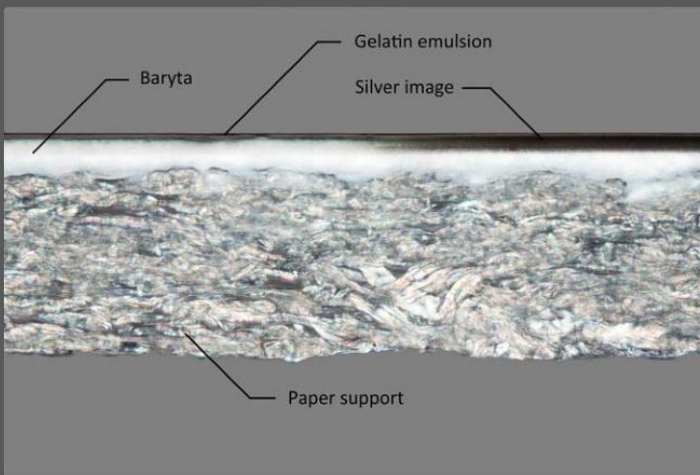


Gelatin silver print

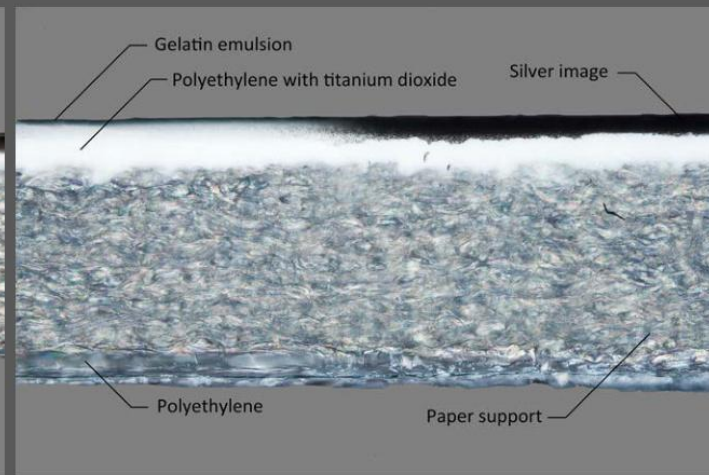


Materials: Silver Gelatin DOP

- Image: silver
- Binder: gelatin
- Support: paper
- Support coating: baryta or polyethylene



Baryta paper

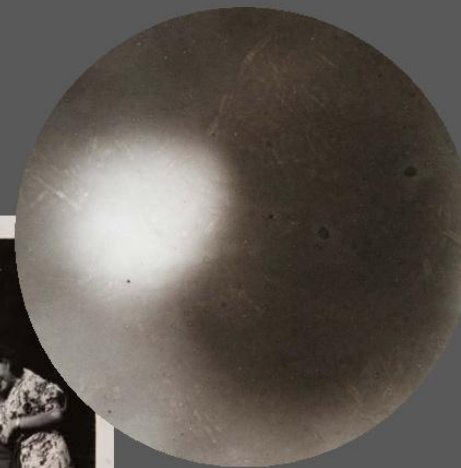


RC paper



Untoned Silver Gelatin DOP

- Black image tone
- Continuous in tone



50x magnification



DOP: Surface Characteristics

Surface sheen characteristics: Matte to Glossy



Historical photographic techniques: description and identification



Historical photographic techniques: description and identification



Silver Image Deterioration

- Image fading
- Change in image tone
 - brown, yellow-brown
 - Silver mirroring



Toned Silver Gelatin DOP



- Sulfur Toning
 - Silver converted to silver sulfide
 - Brown image tones



- Selenium toning
 - Silver converted to silver selenide
 - Purple/red image tones



Historical photographic techniques: description and identification



Historical photographic techniques: description and identification



Resources

Web Resources

- Graphics Atlas
 - 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

Print Resources

- *Twentieth Century Color Photographs: Identification and Care* by Silvie Penichon
- *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