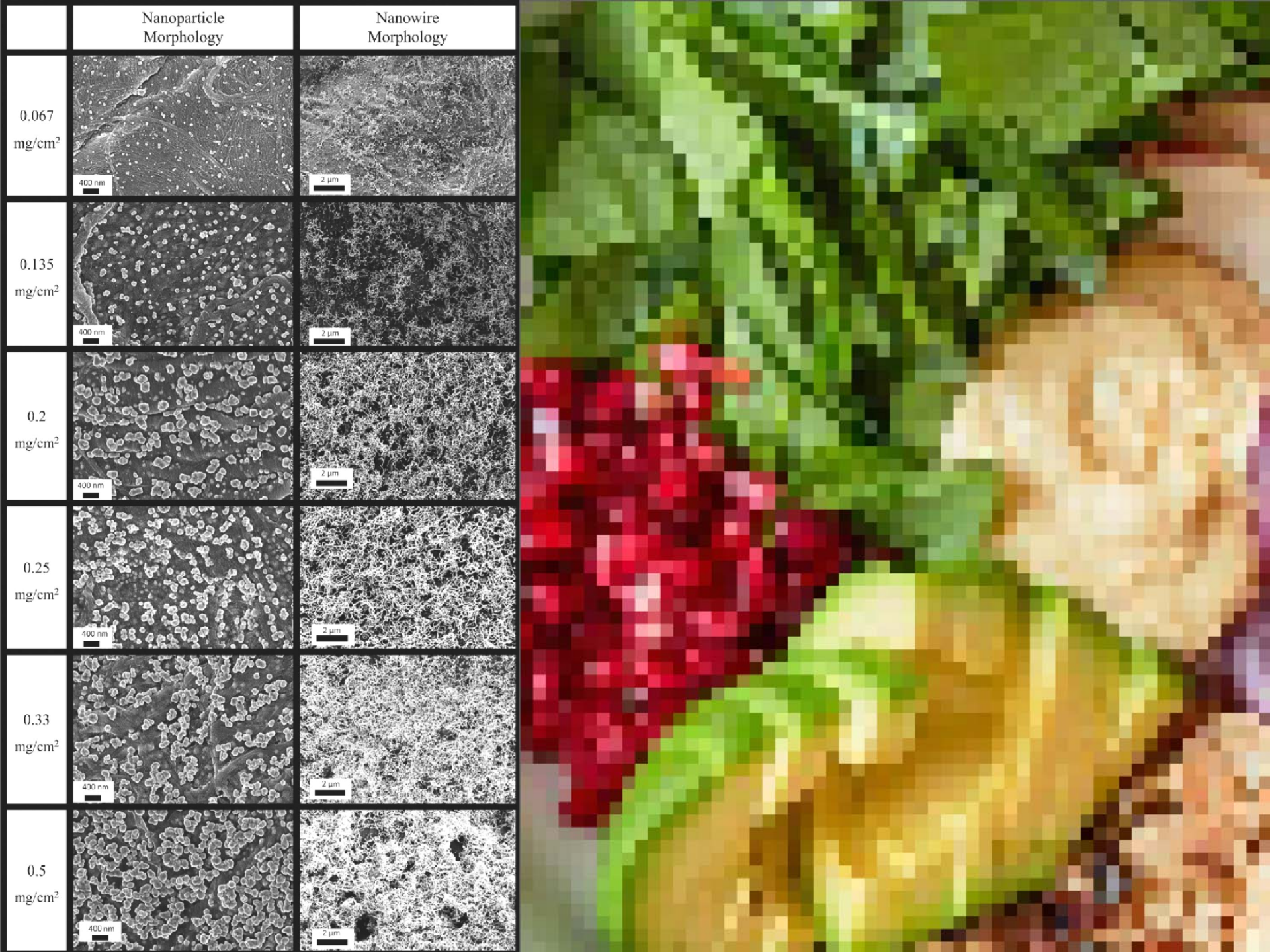
Materials: Analog, Chemical, Electronic, Digital

George Legrady © 2022
Experimental Visualization Lab
Media Arts & Technology
University of California, Santa Barbara


Nanoparticle Morphology
Nanowire Morphology
0.067 mg/cm²
0.135 mg/cm²
0.2 mg/cm²
0.25 mg/cm²
0.33 mg/cm²
0.5 mg/cm²
400 nm
2 µm

Digital Image also has Metadata: EXIF (Exchangeable Image File)

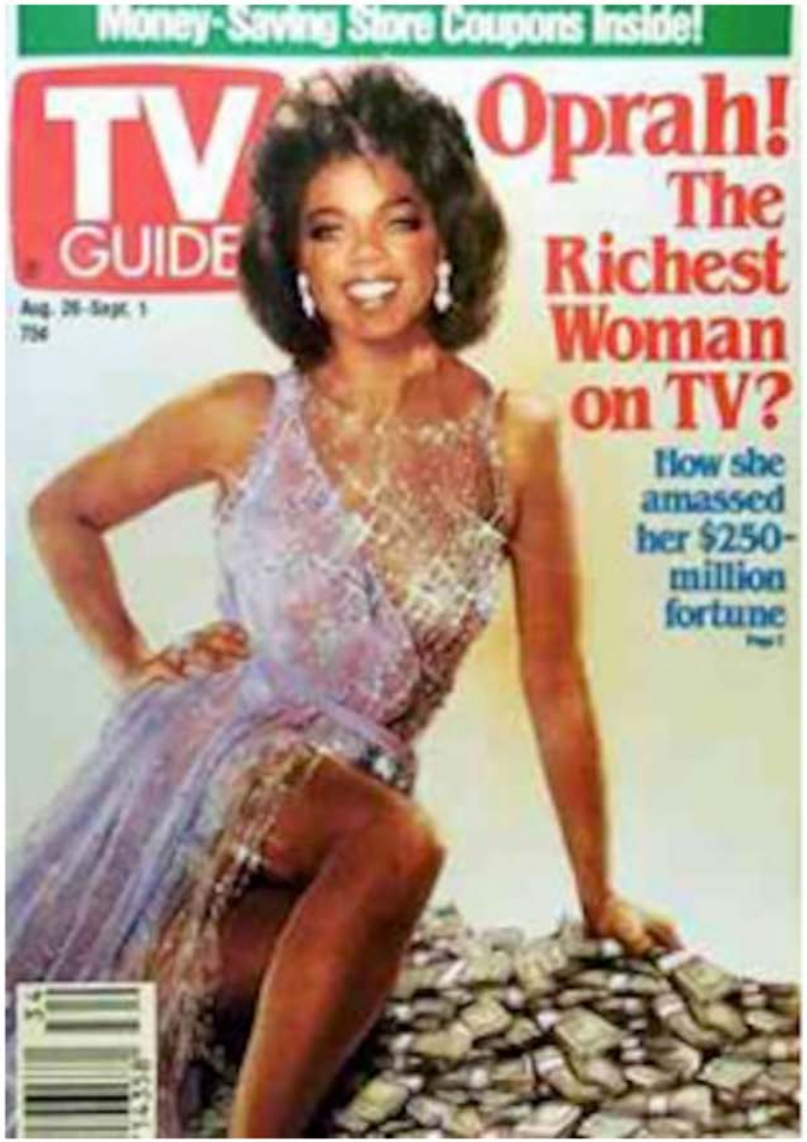
File:View_cameraman_on_41_Dr_for_NYC_2014_Marathon_jeh.jpg

Camera manufacturer	NIKON
Camera model	COOLPIX P330
Exposure time	1/125 sec (0.008)
F-number	f/2.8
ISO speed rating	80
Date and time of data generation	11:40, 3 November 2013
Lens focal length	5.1 mm
Orientation	Normal
Horizontal resolution	300 dpi
Vertical resolution	300 dpi
Software used	GIMP 2.8.2
File change date and time	15:38, 5 November 2013
Y and C positioning	Co-sited
Exposure Program	Normal program
Exif version	2.3
Date and time of digitizing	11:40, 3 November 2013
Meaning of each component	1. Y 2. Cb 3. Cr 4. does not exist
Image compression mode	2
APEX exposure bias	0
Maximum land aperture	1.7 APEX (f/1.8)
Metering mode	Pattern
Light source	Unknown
Flash	Flash did not fire, compulsory flash suppression
Supported Flashpix version	1
Color space	sRGB
File source	Digital still camera
Scene type	A directly photographed image
Custom image processing	Normal process
Exposure mode	Auto exposure
White balance	Auto white balance
Digital zoom ratio	0
Focal length in 35 mm film	24 mm
Scene capture type	Standard
Scene control	None
Contrast	Normal
Saturation	Normal
Sharpness	Normal
Subject distance range	Unknown
Latitude	40° 44′ 55.67″ N
Longitude	73° 57′ 4.8″ W

Analog Photographic Manipulation

Photographic Manipulation (The Atlantic, June 2012)

People have been faking photos since long before digital tools came along.



Nancy Burson: Composites (1995)

https://www.nyfa.edu/film-school-blog/artist-nancy-burson-convergence-art-politics-tech/

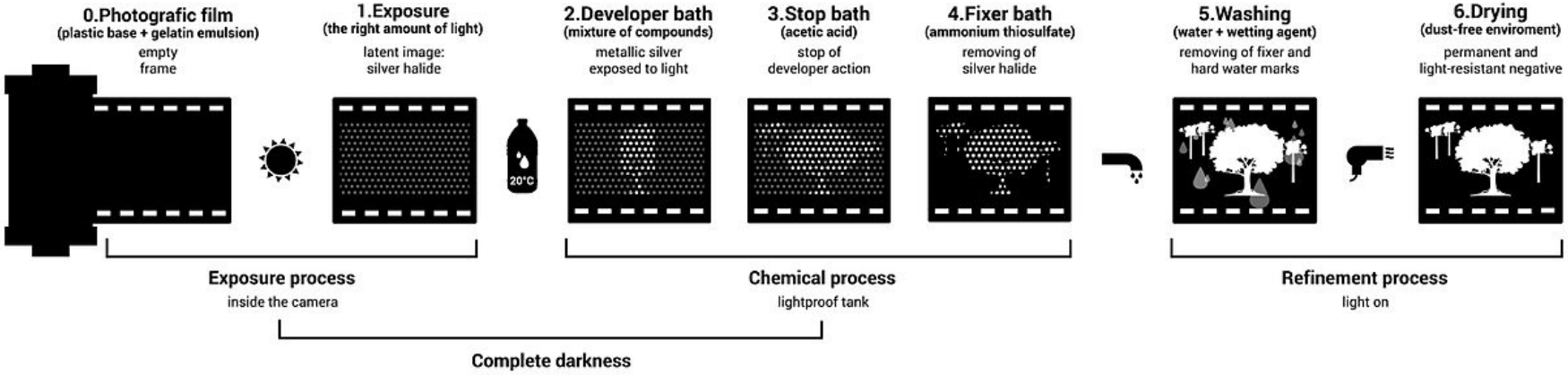
Digital Statistical Imaging

StyleGans: None of these people exist

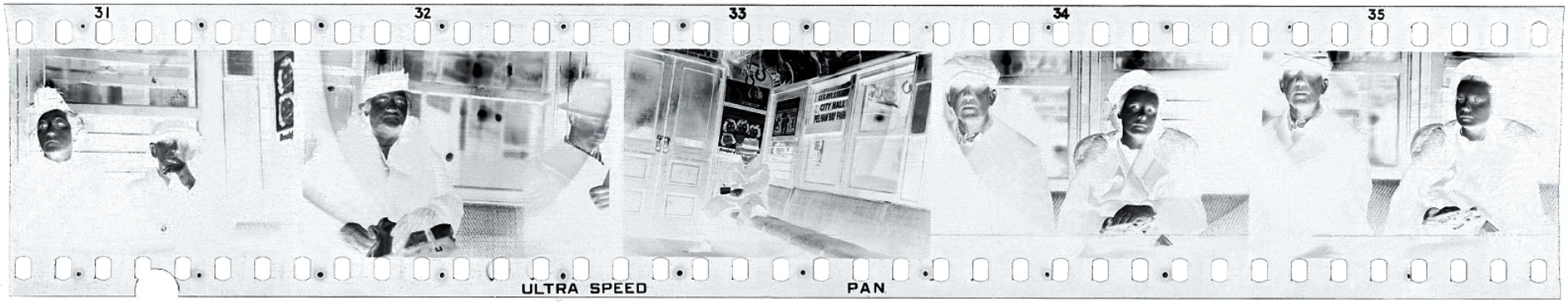
- **To what degree does the materiality of the image substrate impact on the content that it carries?**

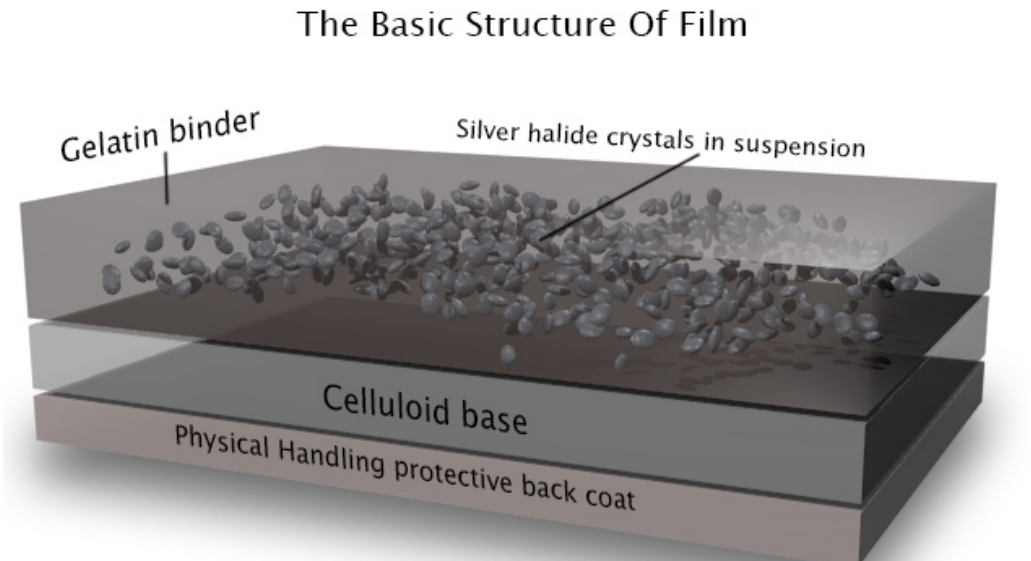
- **Chemical-based photography, a two-part process:**
  1) **Transparent subtrate (film) coated with a chemical is exposed to light resulting in a negative image which is chemically developed and fixed**
  2) **The film is placed on top of a paper coated with chemicals. Light passing through the film exposes the areas not blocked by the negative. The paper is then developed in a chemical solution, and also fixed.**

Chemical-based photographic process



Chemical-based 35mm negative film

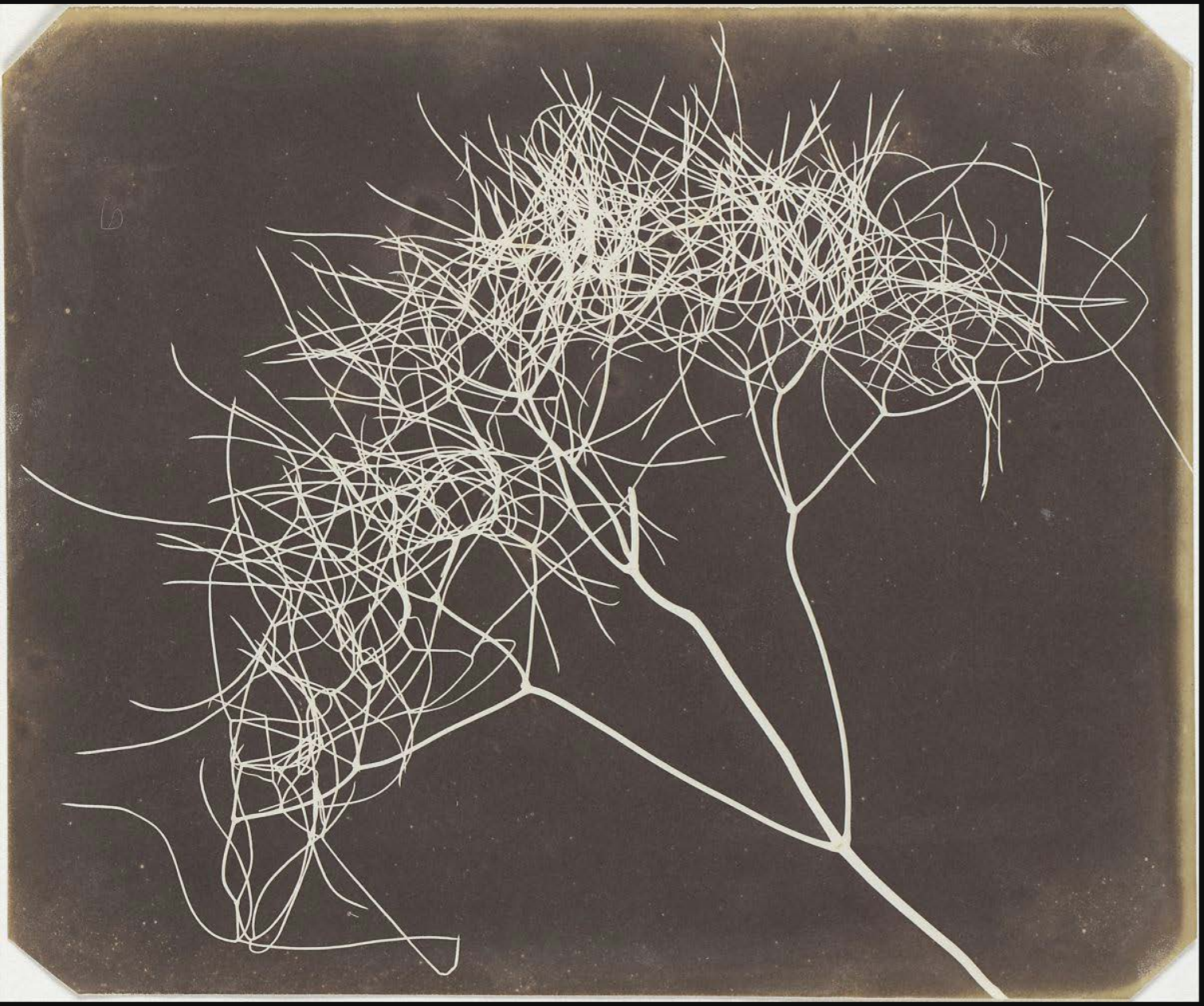




“The Haystack”, Henry Fox Talbot (1844) Salted paper print

https://www.gallery.ca/collection/artwork/the-haystack

“Wild Fennel”, Henry Fox Talbot (1841) Salted paper print



https://www.metmuseum.org/art/collection/search/285922

“Wild Fennel”, Henry Fox Talbot (1841) Salted paper print

https://www.culture24.org.uk/art/photography-and-film/art446200

“Vishnu & Consort”, Gold toned printing out paper, Linda Connor (2000)

https://www.candelagallery.com/continuum

“Stones”, Gold toned printing out paper, Linda Connor (1991)

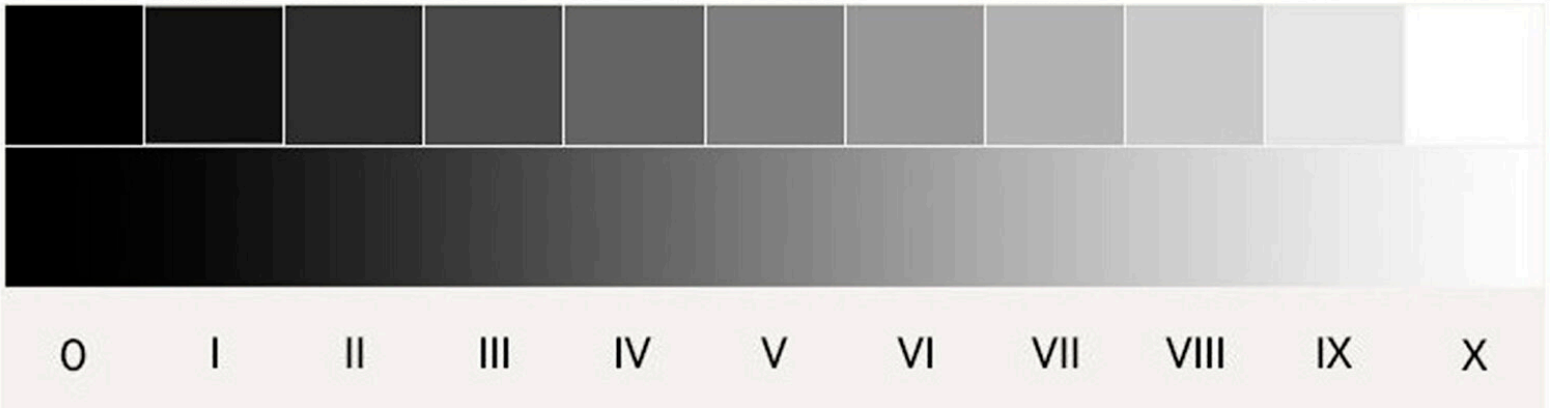
https://www.ggibsonprojects.com/series/linda-connor-contact-prints/

Linda Connor and her 8 x 10 camera

https://neilamiller.com/galleries/time-of-influence/#.YkuFhW7MleY

Ansel Adams

Zone System



Film Grain

Film and developer

The prints opposite (enlarged × 14) show how film and developer control grain (see also p. 78).

32 ASA film

Extremely fine-grain, high resolution emulsion film. Responds best to slow, low-contrast developers.

125 ASA film

Slow/medium speed film. Gives fine grain in all except speed-enhancing developers.

400 ASA film

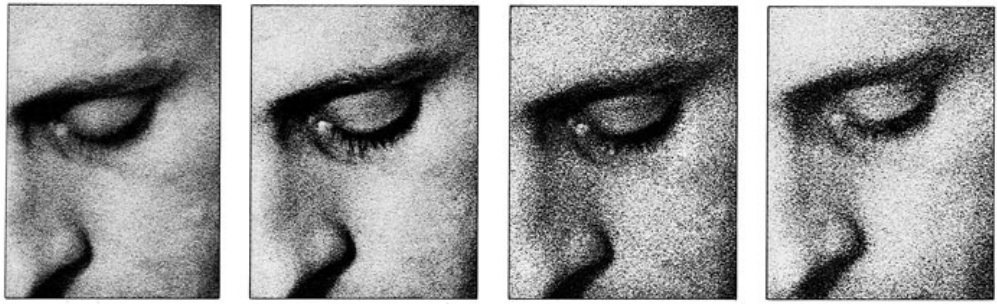
Medium speed film. Gives just noticeable grain in all types of developer.

1250 ASA film

Very fast, coarsest grain. Designed for HC 110 processing. Others may give poor contrast and stains.

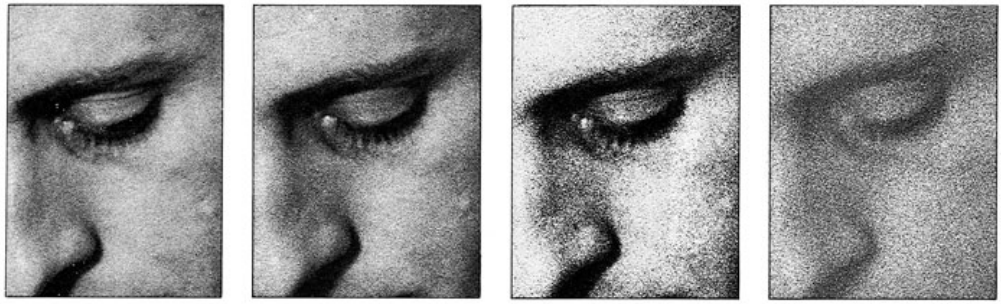
Ultra-fine-grain developers

These low-contrast developers give best results with slow or medium-fast films, which have slightly higher inherent contrast. They give flat negatives on fastest films.



Fine-grain developers

These developers are designed for general use, but are not recommended for very fast films–which fail to reach full emulsion speed and sometimes show dichroic fog stains.



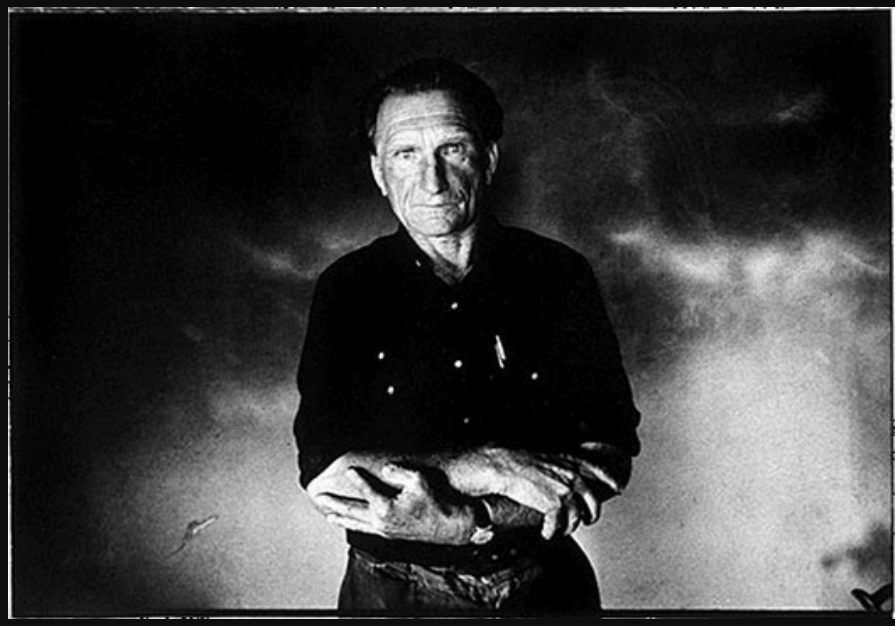
Speed-enhancing developers

These are designed for very fast films, but also useful for general-purpose work. They produce maximum emulsion speed and contrast–moderately fine grain and good definition.

Acutance developers

These developers form an image with high definition, but are not particularly fine grain. They are best for slow or medium films–with very fast films they give a low-contrast image and "gritty" grain. Grain is also emphasized by the contrasty paper used to print negatives.

Film Grain as an aesthetic device



“Mourning Wall”, Ellen Carey (2000)

http://www.ellencareyphotography.com/mourning-wall

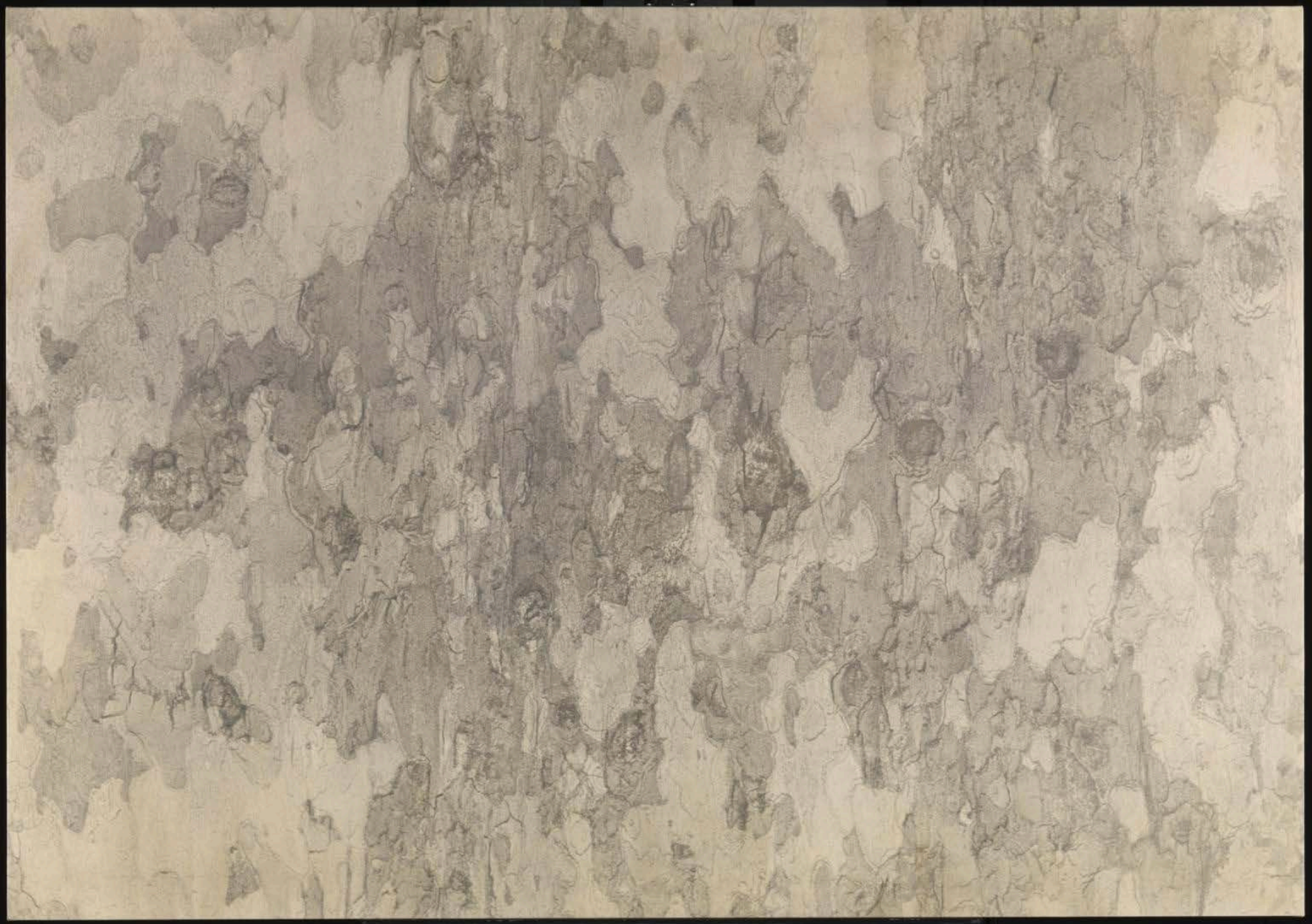
“Photography Degree Zero”, Ellen Carey (1996-2019)

http://www.ellencareyphotography.com/photography-degree-zero

“Smoke”, Rayograph, Man Ray (1928)

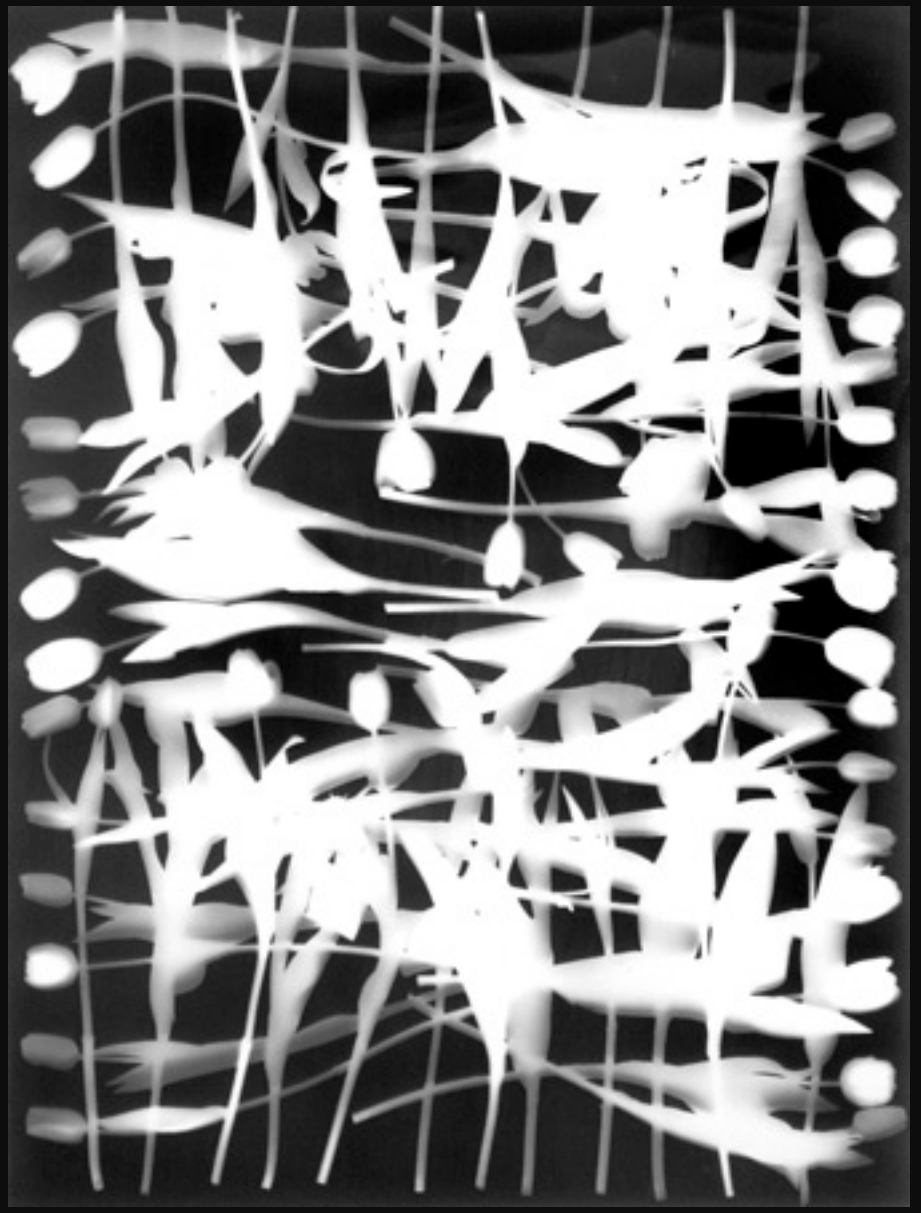
http://www.getty.edu/art/collection/objects/46842/man-ray-abstract-smoke-american-1928/

“Tree Trunk Bark Tree”, Photogram, Kunié Sugiura (1971)



https://www.tate.org.uk/art/artists/kunie-sugiura-24228

“After Electric Dance” (2002), “Stack”, Kunié Sugiura (1999)



http://www.tonkonow.com/sugiura_1990s_8.html

“Jackson Pollock”, Hans Namuth (1950), Vic Muniz (1997)

https://www.moma.org/explore/inside_out/2009/11/12/vik-muniz-painting-with-chocolate/

“Valicia”, “New Car”, Vic Muniz (1996. 2014)

https://www.sikkemajenkinsco.com/vik-muniz

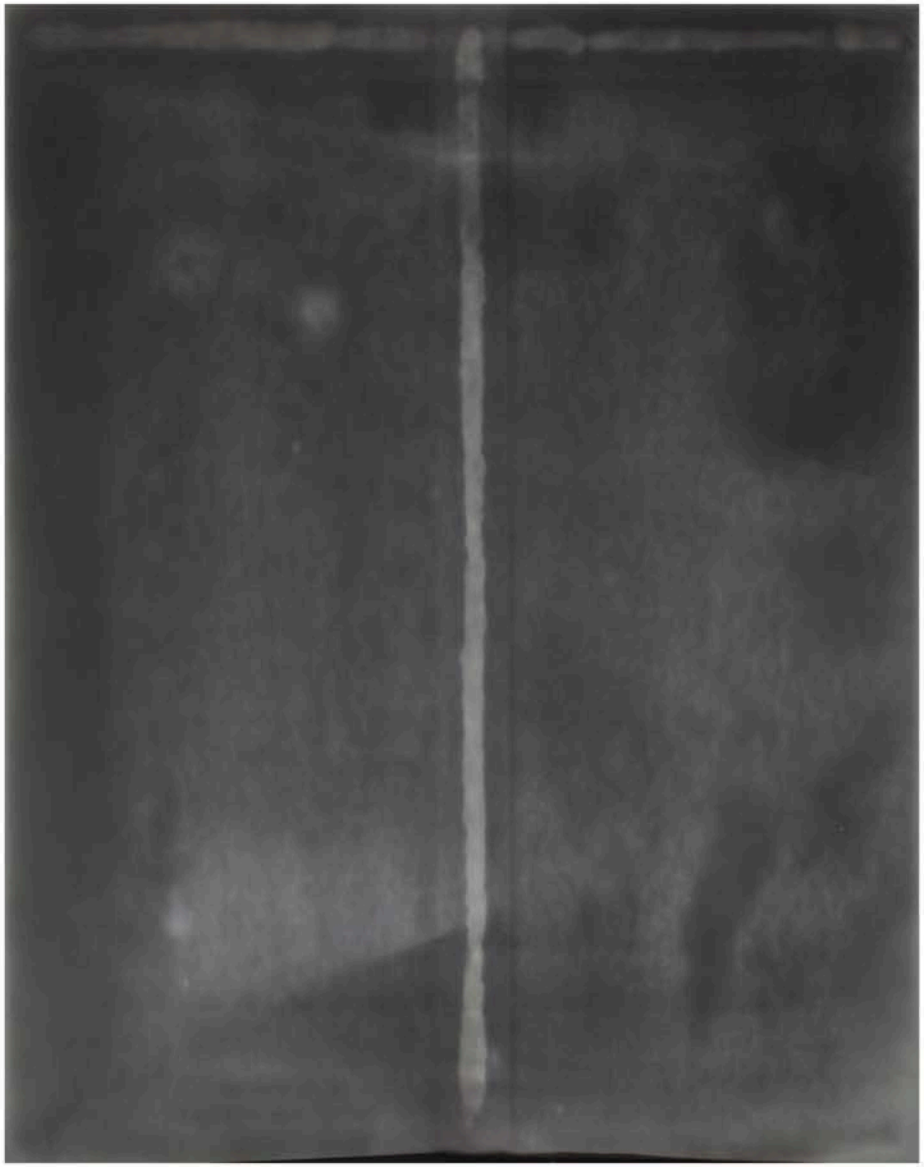
“Attracted to Light”, StarnTwins (1996-2004)

http://www.dmstarn.com/attracted_to_light.html

“Attracted to Light”, StarnTwins (1996-2004)

https://www.google.com/search?q=starn+twins+photography+techniques&source=lnms&tbm=isch&sa=X&ved=2ahUKEwjziJHjpsLsAhWICjQIHVfVBWEQ_AUoAXoECA4QAw&biw=1595&bih=1162#imgrc=H1okANSkySUn2M

Allison Rossiter

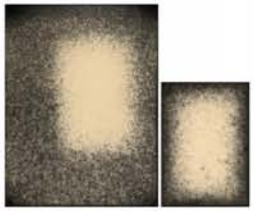


https://yossimilo.com/artists/alison-rossiter/works

Allison Rossiter

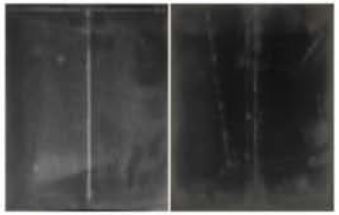
Gevaert Gevaluxe Velours, exact expiration date unknown, ca. 1930s, processed 2020 (#2)

Gevaert Gevaluxe Velours, exact expiration date unknown, ca. 1930s, processed 2020 (#3)

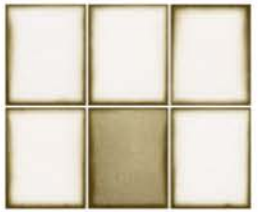


Density 1930s,

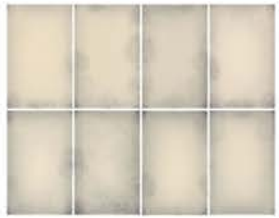
Density 1928, 1929



Density 1941, 1945



Density 1947



Density 1919

Density 1935, 1937, 1938

Density 1937-1939

Density 1930-1933

Density 1921, 1922, 1923

Density 1922-1923

Density 1930s (Gevaert Gevaluxe Velours)

Density 1928-30

Density 1919-1922

Density 1942, 1943

Density 1929

Density 1936

Density 1922

Density 1942, 1946

Density

Density 1948

Density 1941-1945

Density 1938 - 1945

Density 1922

Density 1919-1923 (#1)

Density 1924, 1925, 1926, 1928

https://yossimilo.com/artists/alison-rossiter/works

Susan Rankaitis

https://susanrankaitis.com/Portfolio/2009-Present/2/caption

Susan Rankaitis

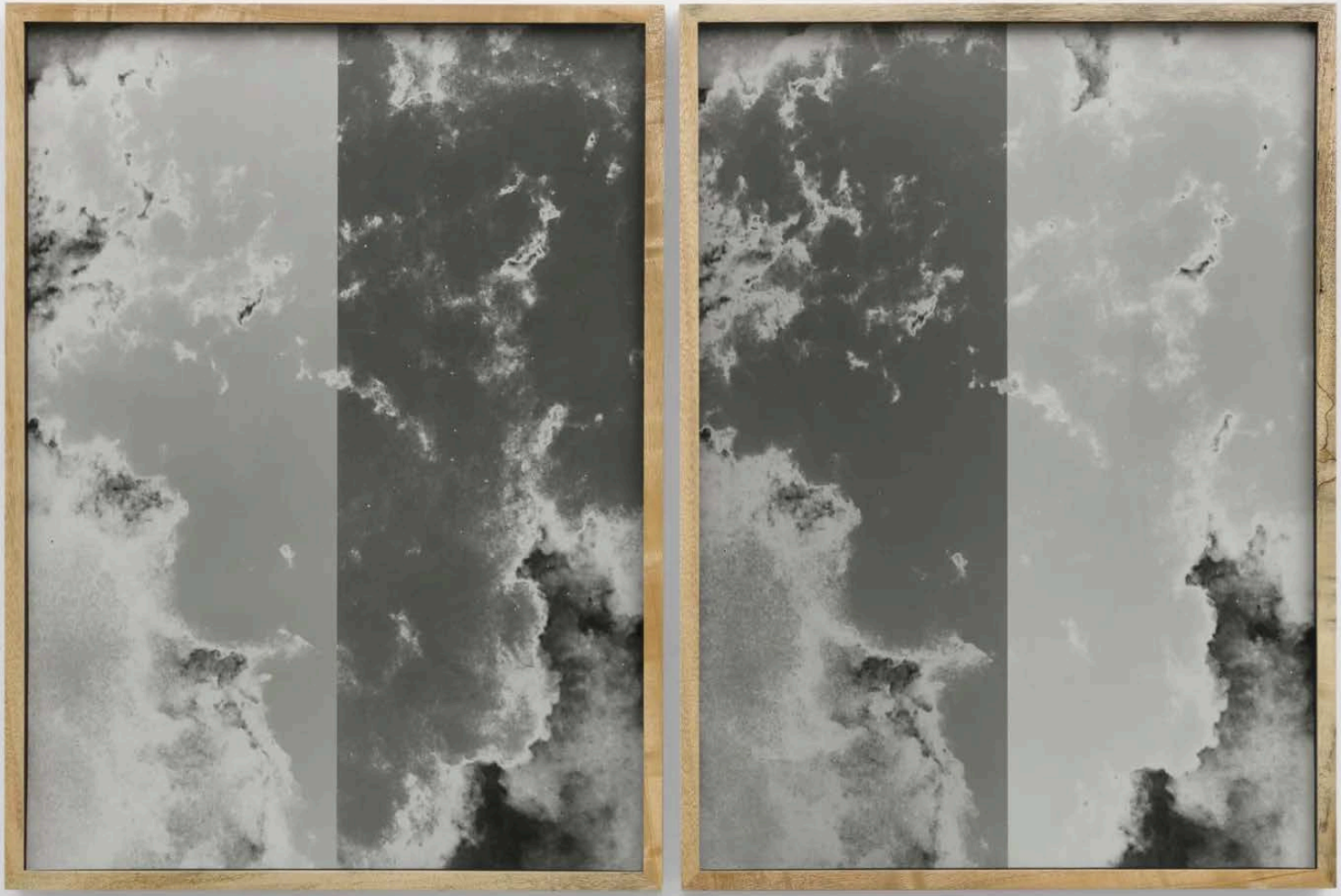






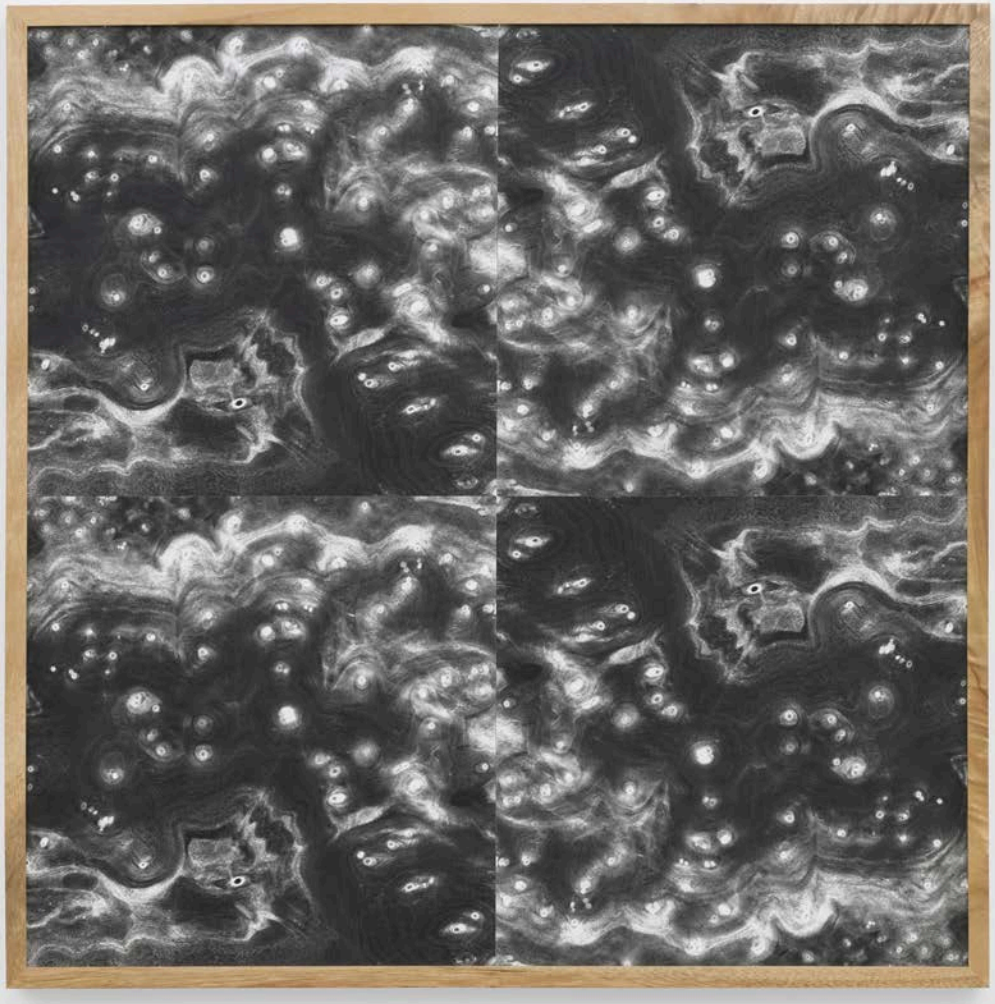

https://susanrankaitis.com/Portfolio/2009-Present/2/caption

“Nitrate Film Vault Test”, Lisa Oppenheim (2020)



https://www.tanyabonakdargallery.com/artists/51-lisa-oppenheim/works/10086-lisa-oppenheim-photograph-of-nitrate-film-vault-test-belsville-maryland-2020/

“Nitrate Film Vault Test”, Lisa Oppenheim (2020)



https://www.lisaopp.net/

Matthew Brandt

https://yossimilo.com/artists/matthew-brandt/works

Matthew Brandt


AgXMH821A


Pine Barrens 5544


Pine Barrens 7332


Lewis Lake WY 1


Rainbow Lake, WY 6


Heidelberg Blanket C2 (Damiani Editore, Faenza, Italy)


Heidelberg Blanket M2 (Damiani Editore, Faenza, Italy)


Sgr A* C


Milky Way G6A


Upper Falls C2M1Y1


Stepping Stone Falls 1 Y3M3C1


Stepping Stone Falls 2 Y3M2C1


Stepping Stone Falls 3 Y3M1C2


RB1


Wai'anae 72401


Wai'anae 1207210


Wai'anae 603623


La Brea D1AB


La Brea D2EF1


La Brea B11


3984846u1, Tenement Row; Demolition Site, 1936


00075328-2, L.A. Churches, First Christian Church, 1961


'A Testament, Stack Up in Boston's Copley Square to Honor Victims of the Marathon Attack,'


'One Option for Flu Vaccination is a Standard Shot,' L.A. Times 09.29.2014

https://yossimilo.com/artists/matthew-brandt/works

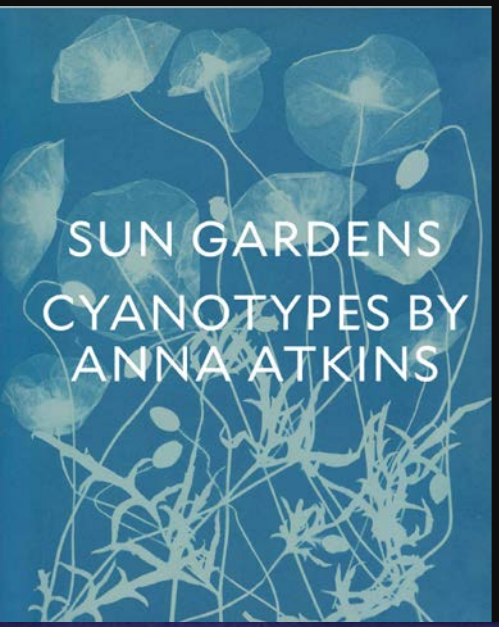
Marco Breuer

Gelatin Silver, burned, (1995), Chromogenic paper, folded/burned (2013)

“E-33”, Cyanotype, “E-87”, Gum Bichromate, Marco Breuer (2005)

https://yossimilo.com/artists/marco-breuer#&gid=1&pid=marco_breuer-untitled_e-33-6

Cyanotype photograms of plants - Scientific Applications

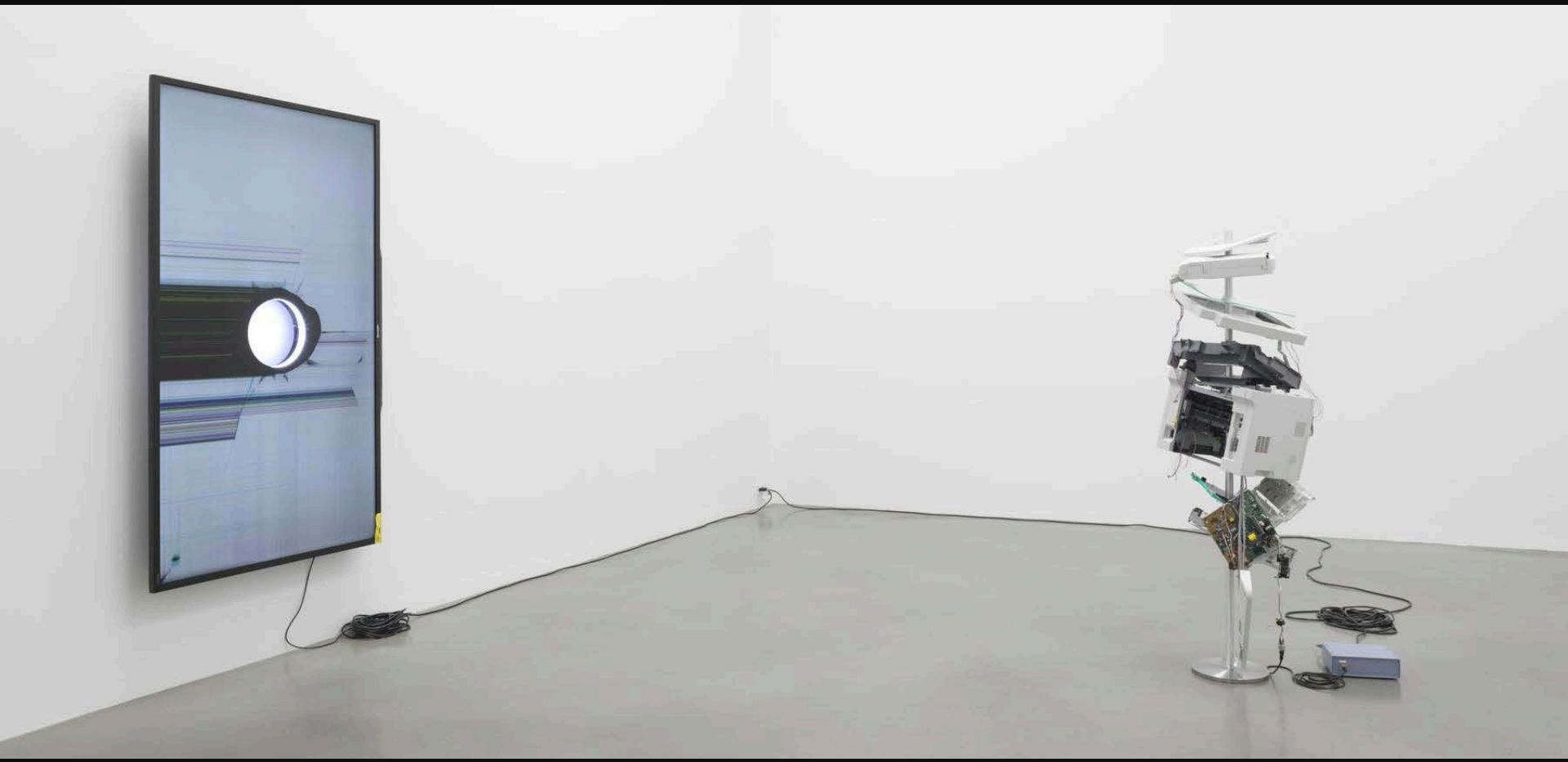


Anna Atkins, botanist (1843) https://en.wikipedia.org/wiki/Anna_Atkins

“Abstract of A Partial Disassembling”, Cyanotypes, Walead Beshty (2019)

https://www.actionstakenunderthefictitiousnamewaleadbeshtystudiosinc.com/abstract-of-a-partial-disassembling-of-an-invention-without-a-future-petzel-2019

“Open Source”, Walead Beshty (2017)



https://www.petzel.com/exhibitions/walead-beshty2

“Picture Made By My Hand with the Assistance of Light”, Walead Beshty (2006)

https://whitney.org/collection/works/30516

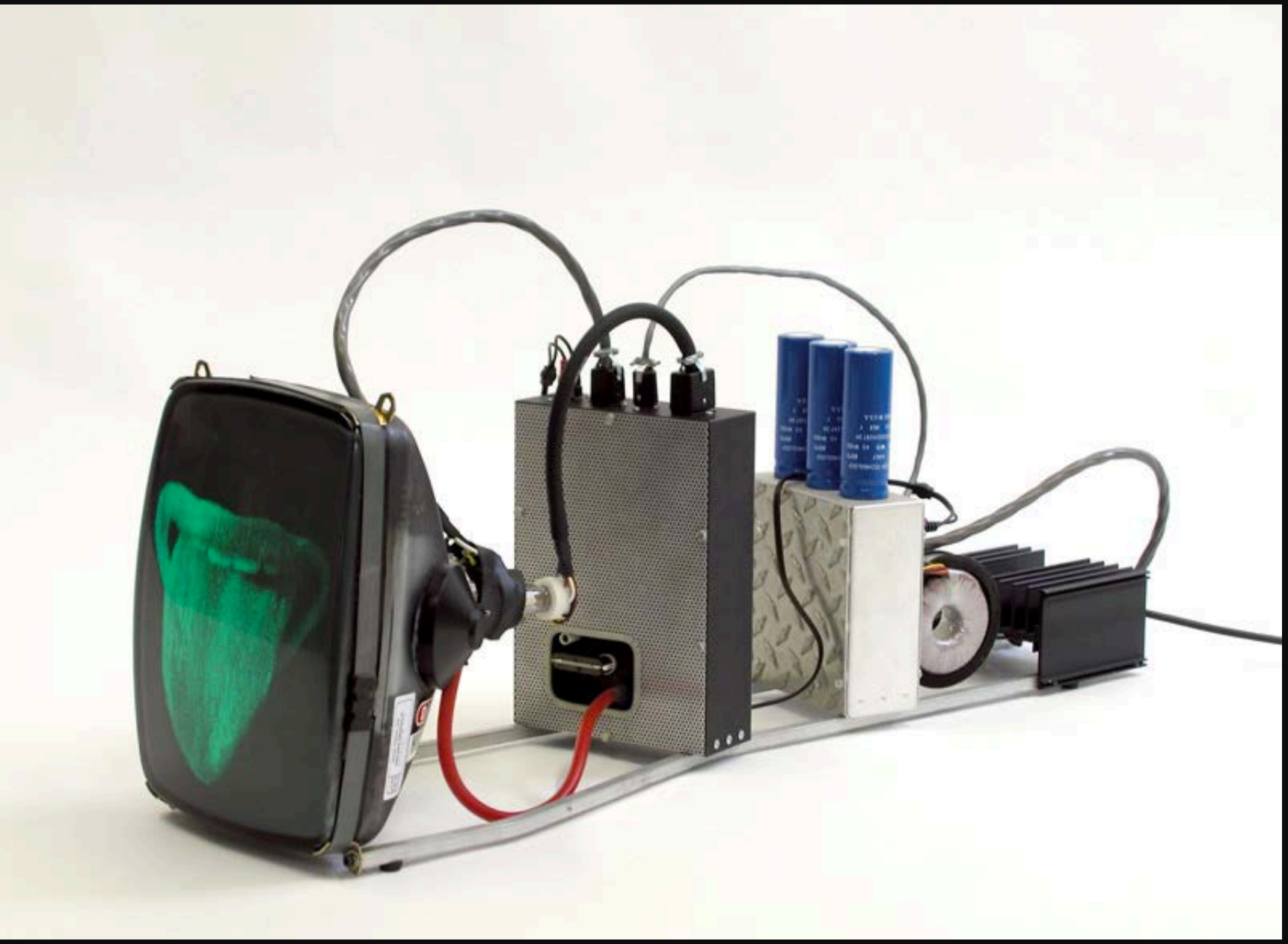
“Picture Industry: A Provisional History….”, Walead Beshty (2018)

https://www.actionstakenunderthefictitiousnamewaleadbeshtystudiosinc.com/picture-industry-a-provisional-history-of-the-technical-image-18442018-luma-arles-2018

“Floating Eyeballs”, Alan Rath (2010)

http://brycewolkowitz.com/h/artist_gallery.php?a=17

“Floor Polisher”, Alan Rath (1993)

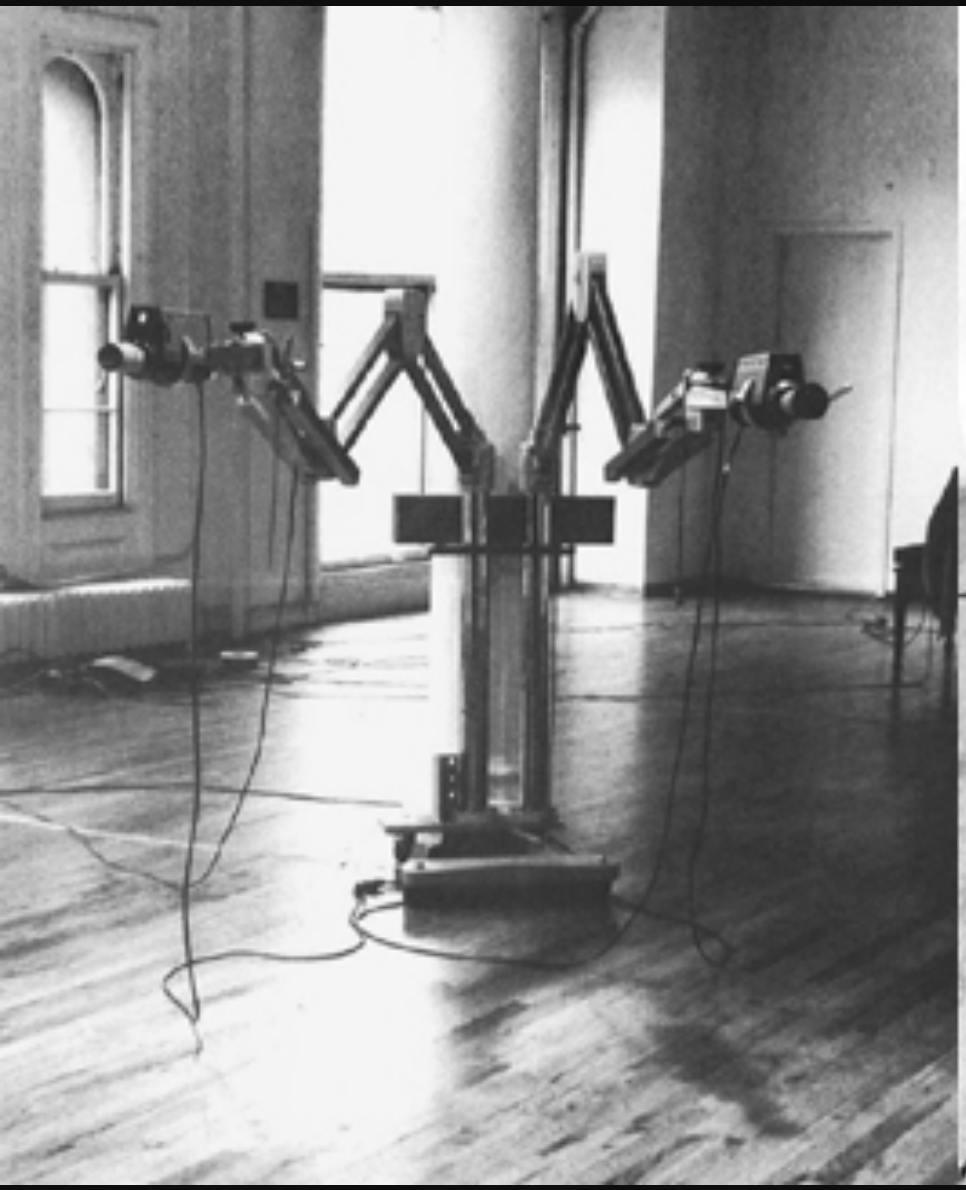


http://brycewolkowitz.com/h/artist_gallery.php?a=17

Woody Vasulka (2014)

https://vasulkakitchen.org/en/vasulkovi

Steina Vasulka (1994)



http://www2.tate.org.uk/intermediaart/vasulka.shtm

Nam June Paik (2014)

https://www.dols.it/2017/03/15/arte-digitale-degli-anni-70/#prettyPhoto/1/

“Electronic SuperHighway”, Nam June Paik (1995)

https://americanart.si.edu/exhibitions/paik

To be continued…