Technical Innovations after the Calotype

1. Albumen binder on glass negatives:
   a) desire to replace the paper neg for greater sharpness led to using glass; but how to adhere emulsion thereon?
   b) in France Niepce de Saint-Victor (nephew of Joseph Niepce) suggested using egg whites (albumen) as the binder.
   c) in America, Alexander Wolcott, John Whipple, and the Langenheim Bros. were using albumen binder by 1849.
   d) By 1853, John Whipple was producing albumen prints from albumen-bindered glass negs. and calling these sharper prints "crystallotypes."

Technical Innovations con't

2. Collodion Wet Plates Negatives:
   a) in 1846, a Swiss chemist, C.F. Schonein, discovered an explosive substance called guncotton (nitrated cotton).
   b) in 1847, two Frenchmen, Menard and Domonte, took guncotton and disssolved it in alchohol and ether, producing a viscous liquid which they called "collodion" (Greek for "glue"). It was originally used to bind wounds in the battle field.
   c) in 1853, Frederick Scott Archer, an English sculptor and photographer took collodion and added soluble iodide; he then coated a glass plate with it, leaving a clear film on the plate; this was sensitized by bathing it in a solution of silver nitrate. Silver iodide (AgI) was the emulsion resulting. This plate had to be exposed while still moist. It was developed in pyrogallic acid or ferrous sulphate solution.

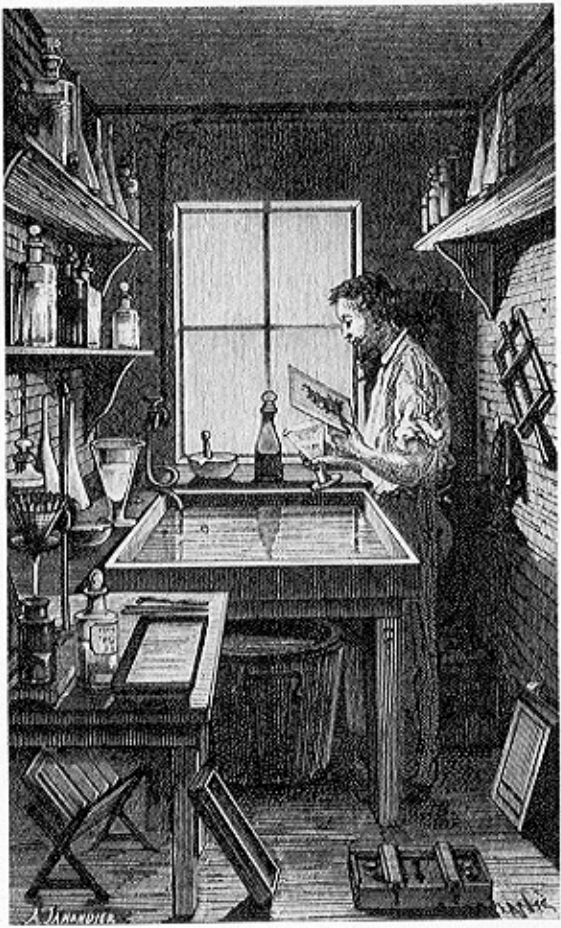
Collodion Wet Plate

Glass wet plate's emulsion was faster than C-type, faster to print and gave better shadow and highlight detail too.

This process necessitated having to have a darkroom available when shooting in the field, unlike the C-type.

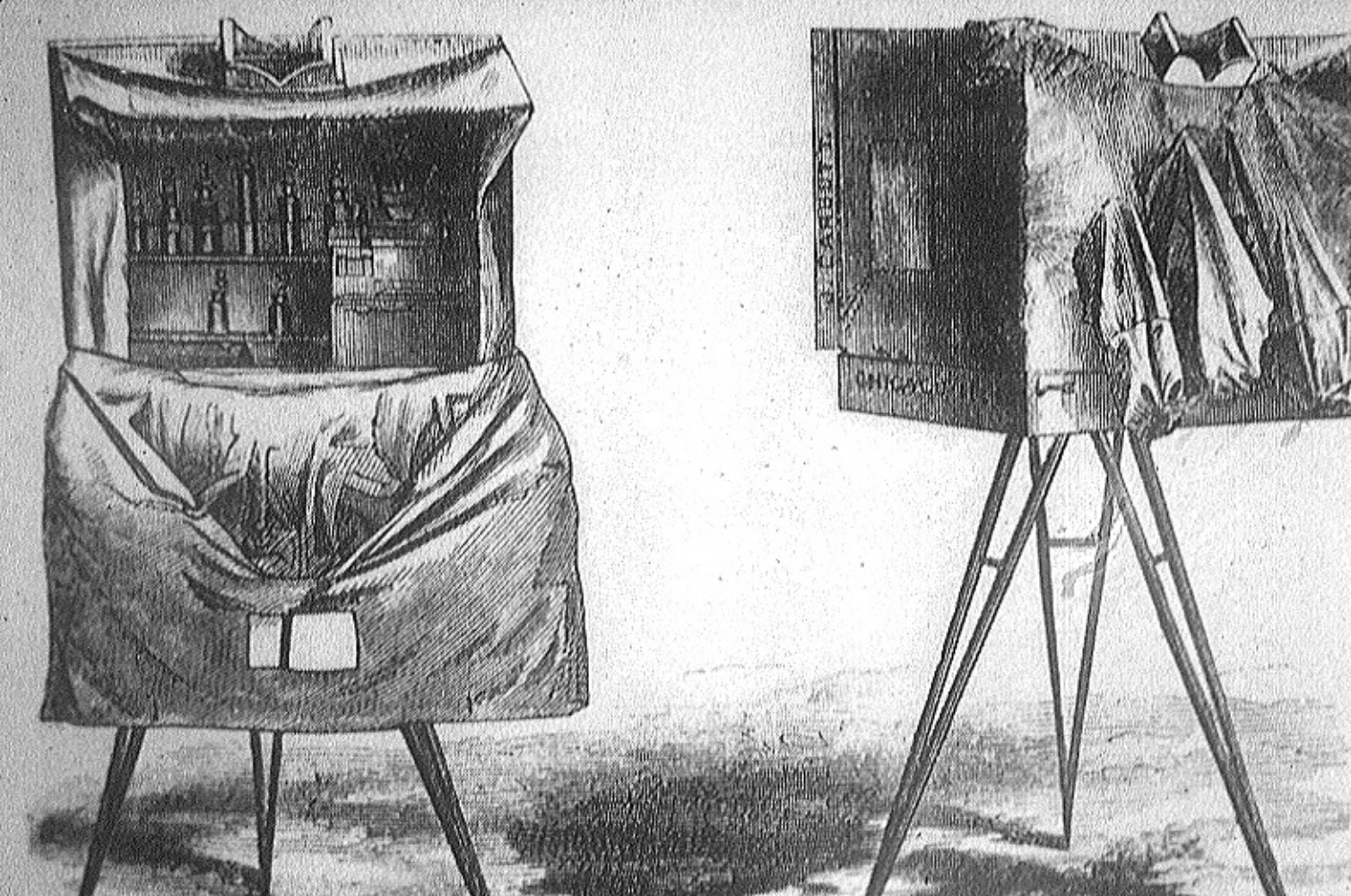
The wet plate was popular in the USA from 1856 - 1881, when the gelatino-bromide dry plate was invented.

Later improvements included using albumen along with collodion as the binder, the albumen helping to prevent curling of the emulsion off the plates's edges.



A typical wet-plate darkroom. The window is covered with orange paper. The photographer is developing a plate by pouring developer over it until a satisfactory image is seen. From Gaston Tissandier, *A History and Handbook of Photography*, London, 1878.


PHOTOGRAPHIC
VAN



FREDERICK SCOTT ARCHER. *Leicester Buildings*. From an album of albumen prints from Archer's first collodion negatives, presented by him to the photographer Jabez Hogg in 1851. The Royal Photographic Society, Bath, England.

The Ambrotype, the Poor Man's D-type

Invented by James Ambrose Cutting of Boston in 1854. and named "Ambrotype" by Marcus Aurelius Root, a famous Philadelphia photographer/writer.

The Ambrotype was an under-exposed collodion neg. that was processed in a developer to which mercuric chloride was added; this caused the wet plate image to become a grayish white; it could be then viewed as a positive image when backed with dark material (or in cheaper versions, the reverse of the glass was painted black). The white areas turned black, dark areas of neg (which was silver deposits) reflected light and by contrast appeared as highlights.

Comparing A-type with the D-type

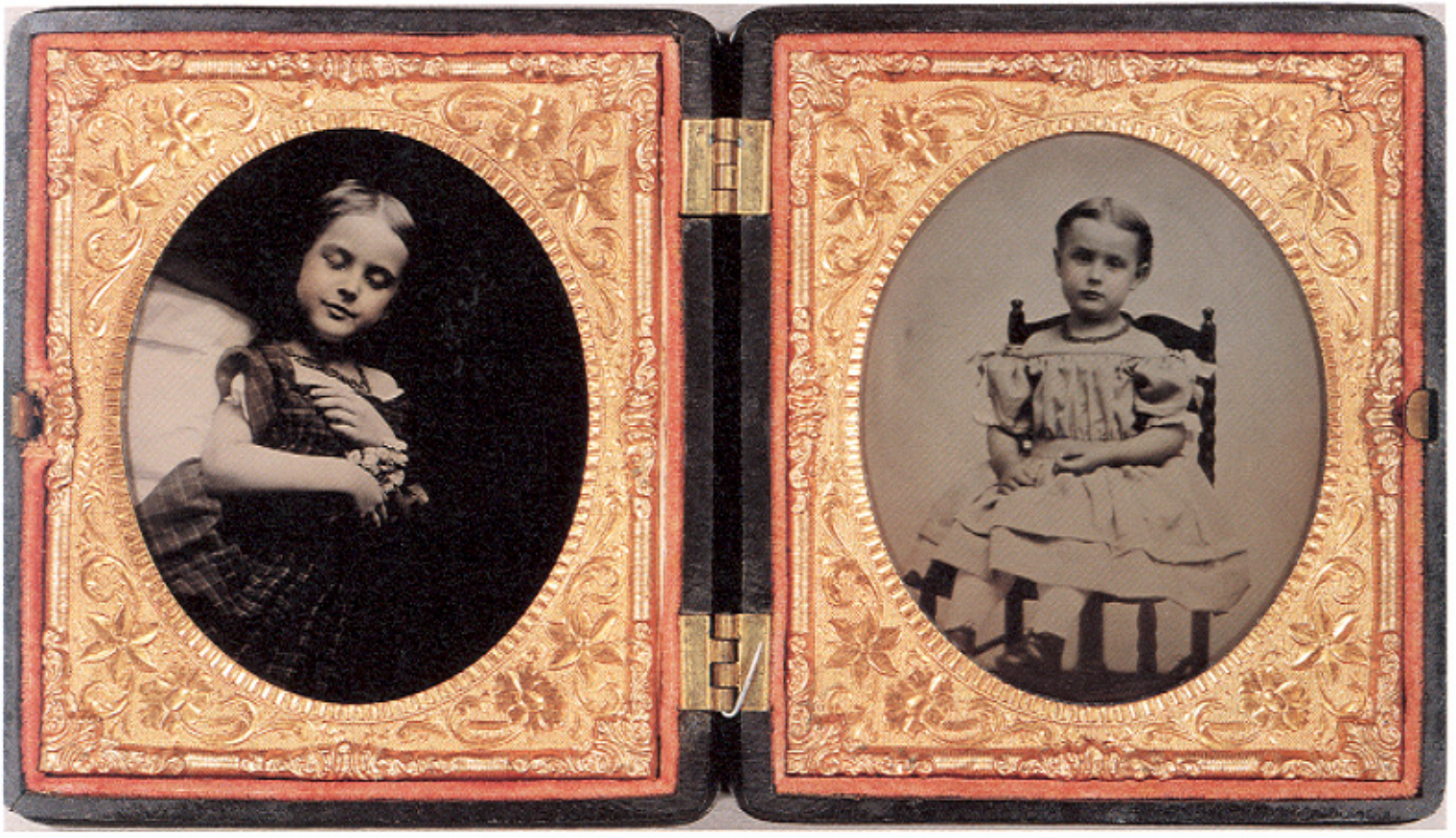
A-type was like D-type in that:
a) both were sealed under glass in a case;
b) both were one-of-a-kind images
c) both were actually negative images that gave the illusion of a positive image.

A-type differed from the D-type in that:
a) A-type was on glass, D-type on silvered plate;
b) A-type did not laterally reverse the image as D-type did;
c) A-type less susceptible to damage by touch and by oxidation.
d) A-type could be viewed by several people at once, D-type was viewable only by one person at a time due to the reflective nature of the plate.
e) A-type was cheaper to produce than the D-type.

The Riding Master, c. 1860, photographer unknown

The ambrotype is simply a collodion wet-plate negative with a dark backing of either cloth or varnish. The right half of the plate shown above is not backed and therefore looks like an ordinary negative. With backing on the left side, the positive image appears. A completely backed plate is shown at right.


AMBROTYPE SA OON



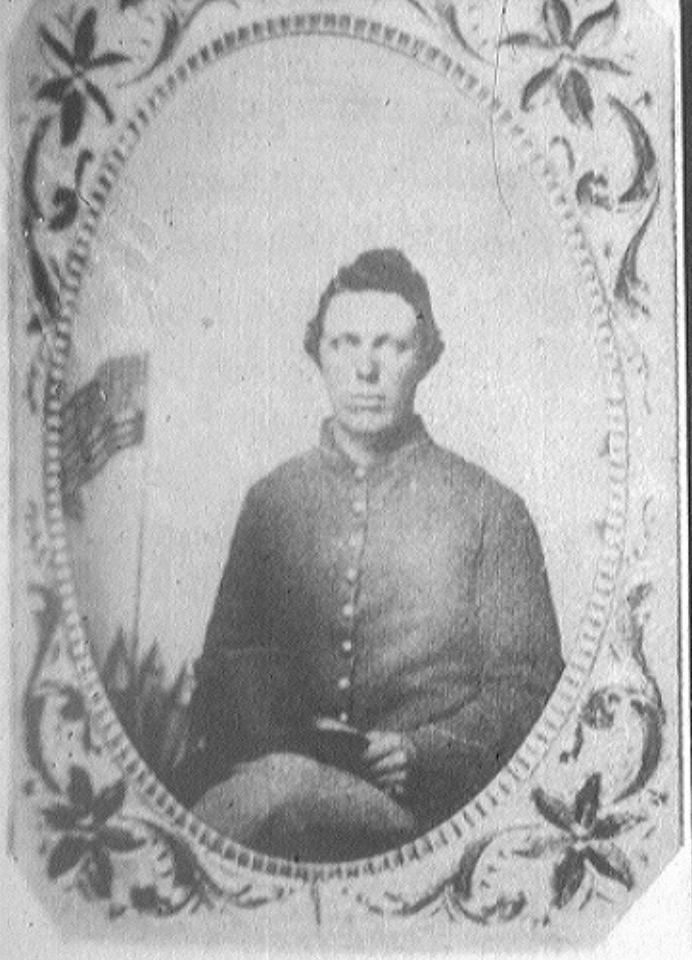
The Tintype also melainotype or ferrotype

Invented by Hannibal Smith, an American, in 1855. Peter Neff acquired patent for tintypes and manufactured thin metal plates for the tintypes.

Tintype is a collodion neg on metal that has been coated black ("japanning" was term used). Later a more chocolate-colored backing was used giving a more pleasing image.

By 1861, tintypes were very popular due to their sturdiness (could be mailed) and cheapness. Civil War portraits were often tintypes. They could be cut into medallion shapes or used as campaign buttons for politicians.

". . . the admirers of 'Old Uncle Abe,' Breckenridge, Douglas and all the other candidates whose name is legion, want pictures of their leaders and, as they want them on melainotype plates, in the shape of broaches, pins, studs, etc., an unprecedented demand has arisen for this article. The manufacturer [Peter Neff] has all he can do to keep up with his orders."



Tintype of a Civil War soldier, 1862. Stanley J. Morrow, aged twenty, Company F, Seventh Wisconsin Infantry. Morrow became in later life a well known frontier photographer (see Chap. XV). (Courtesy Dr. W. H. Over, direc-

Peter Neff, who with his father acquired the rights to Smith's patent and first began the manufacture of tintype plates. (Courtesy *Bulletin of the Geological Society of America.*)

Tintypes con't

Tintypes were available in sizes ranging from whole plate (6.5 x 8.5 in.) down to locket and ring-size images.

They were frequently hand-colored as the range of contrast was limited compared to regular prints.

Often 4-tubed cameras (4 lenses) used to shoot calling-card size tintypes (4 images per plate, cut and trim into 4 individual tintypes.)

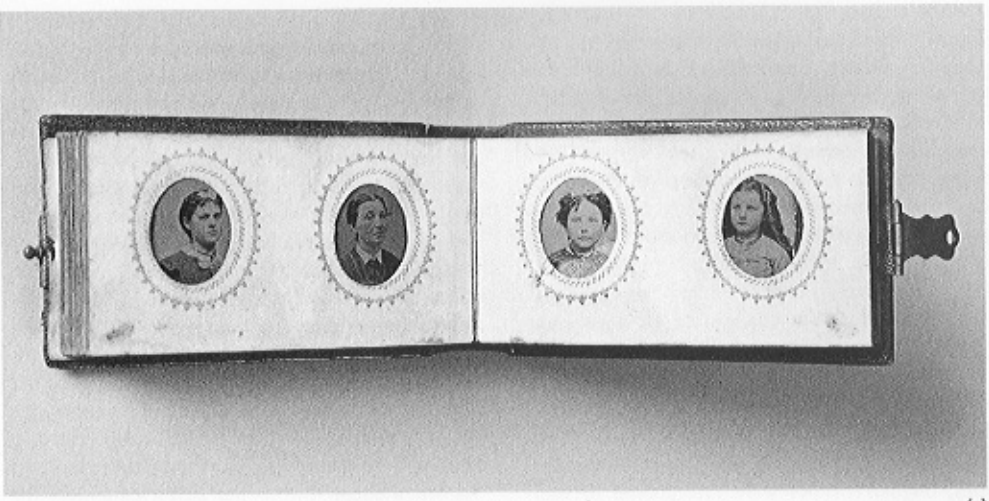
Tintypes were displayed in albums with sleeves to hold them, or even inside light D-type cases.


WALK IN AND HAVE
SIX FERREOTYPES
TAKEN FOR
25 CENTS.







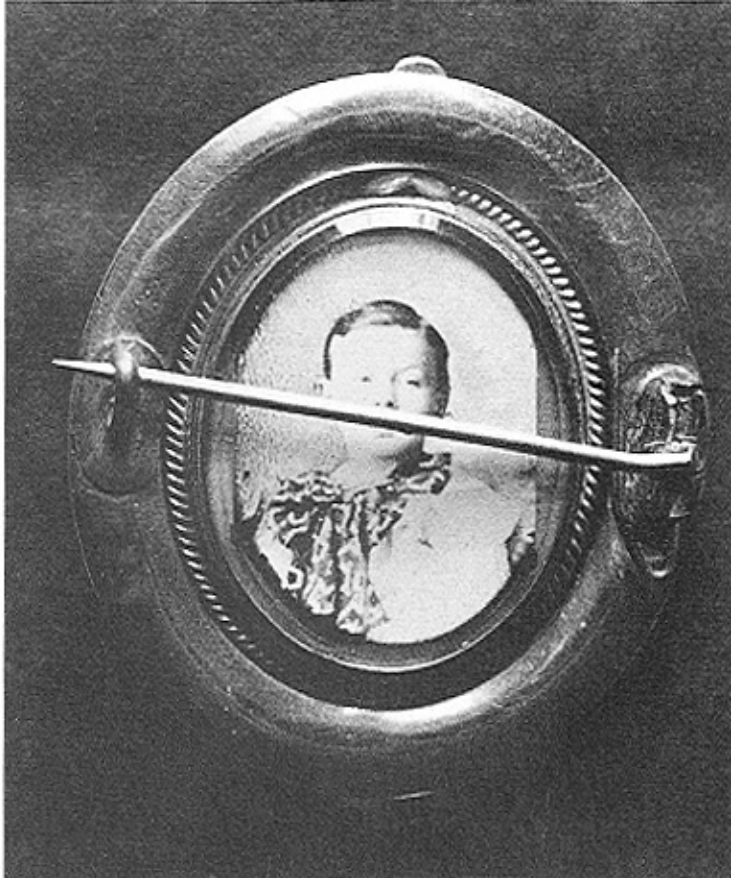



(a)

448 **Unknown Maker**, *Boy with Gem Tintype Album*, ca. 1870

449 **Unknown Maker**, *Smiling Man Behind Wall*, ca. 1880

Unknown photographer. *Woman with Umbrella Painted*, circa 1880. 8½ × 6½ inches. Hand-painted tintype. Courtesy of the Robin Kelsey and Michael Lehr Collection.

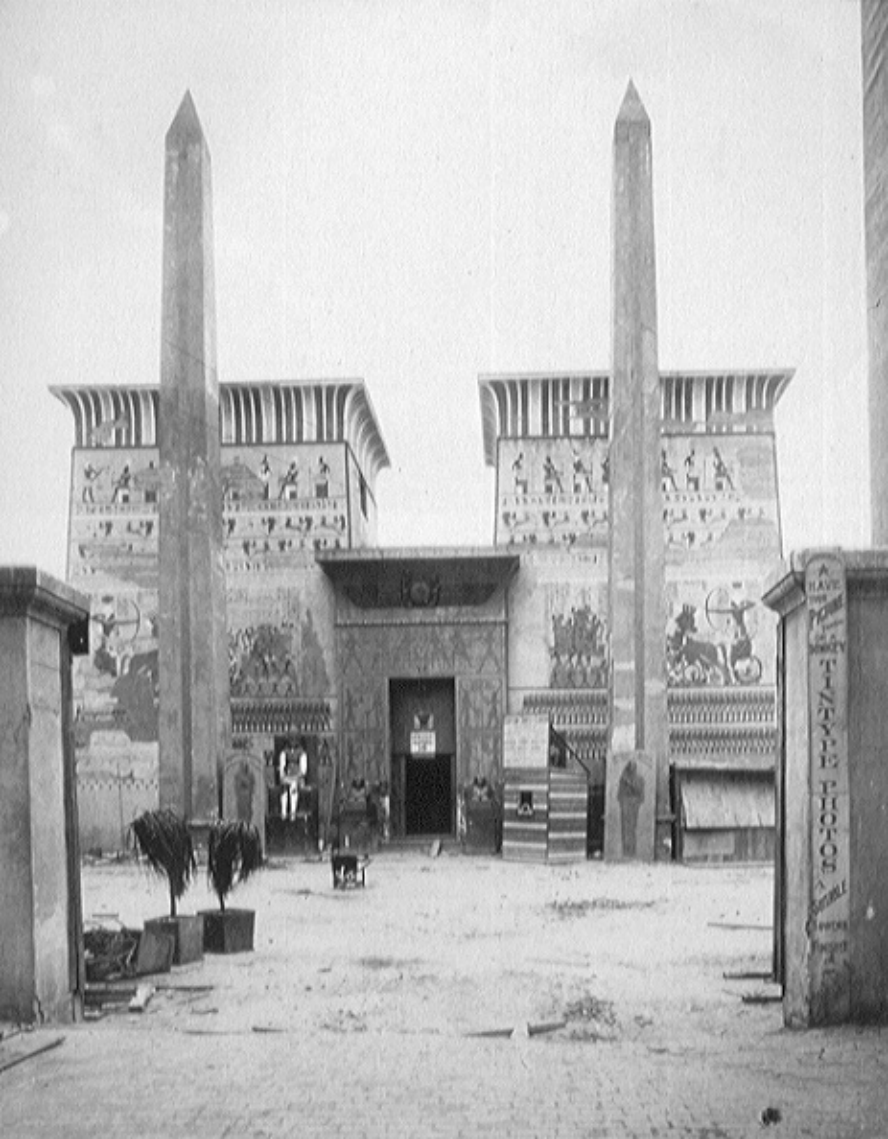



Regards
My mother's brother

A. K. P. TRASK, FERROTYPER.

Ferrotype made on Phenix Plate Co's Chocolate Tinted Egg Shell Plate.

SCOVILL MANUF'G CO. SOLE AGENTS.


FIZEAU PHOTOS

Cartes-de-visites

Visiting card size albumen prints mounted on card stock. This small card photo was in use by 1851 by Louis Dodero in Marseilles, France. It became popular when the Duke of Parma had a photographer make scores of such small portraits of him. In France, Napoleon II had cartes made for public distribution as he left on a military campaign against Italy, so that by 1859 cartes-de-visites were very popular.

Cartes were introduced to a Parisian clientele by Adolph E. Disderi in 1854; he designed and patented a special 4-tubed (4-lensed) camera with a shifting film back so 8 images could be made per full-size plate, increasing production.

In London, John J.E. Mayall issued cartes of the Royal Family; and in America George Rockwood was the first to shoot these new small pictures for his clients.

Cartes-de-visite con't

Cartes-de-visites were 2 1/4 x 3 1/2 in. in size. Albums were made to fit them. They were exchanged and collected and their subject ran from portraits to pornography.

S. A. Holmes, a photographer, called them: "The social currency, the sentimental green-backs of civilization."

A photo journal in May 1863 wrote of them: "In Boston, as in every other city and town in this country, the card photograph has for the past two years been in universal demand, almost to the complete exclusion of every other style of photographic portraiture, and has in fact produced a revolution in the photographic business."

Cartes-de-visites con't

In 1855, Southworth and Hawes also introduced a 4-lensed camera with a shifting back to shoot 8 images per plate, but on D-type material.

Cartes were most popular in USA from 1861 - 1866.

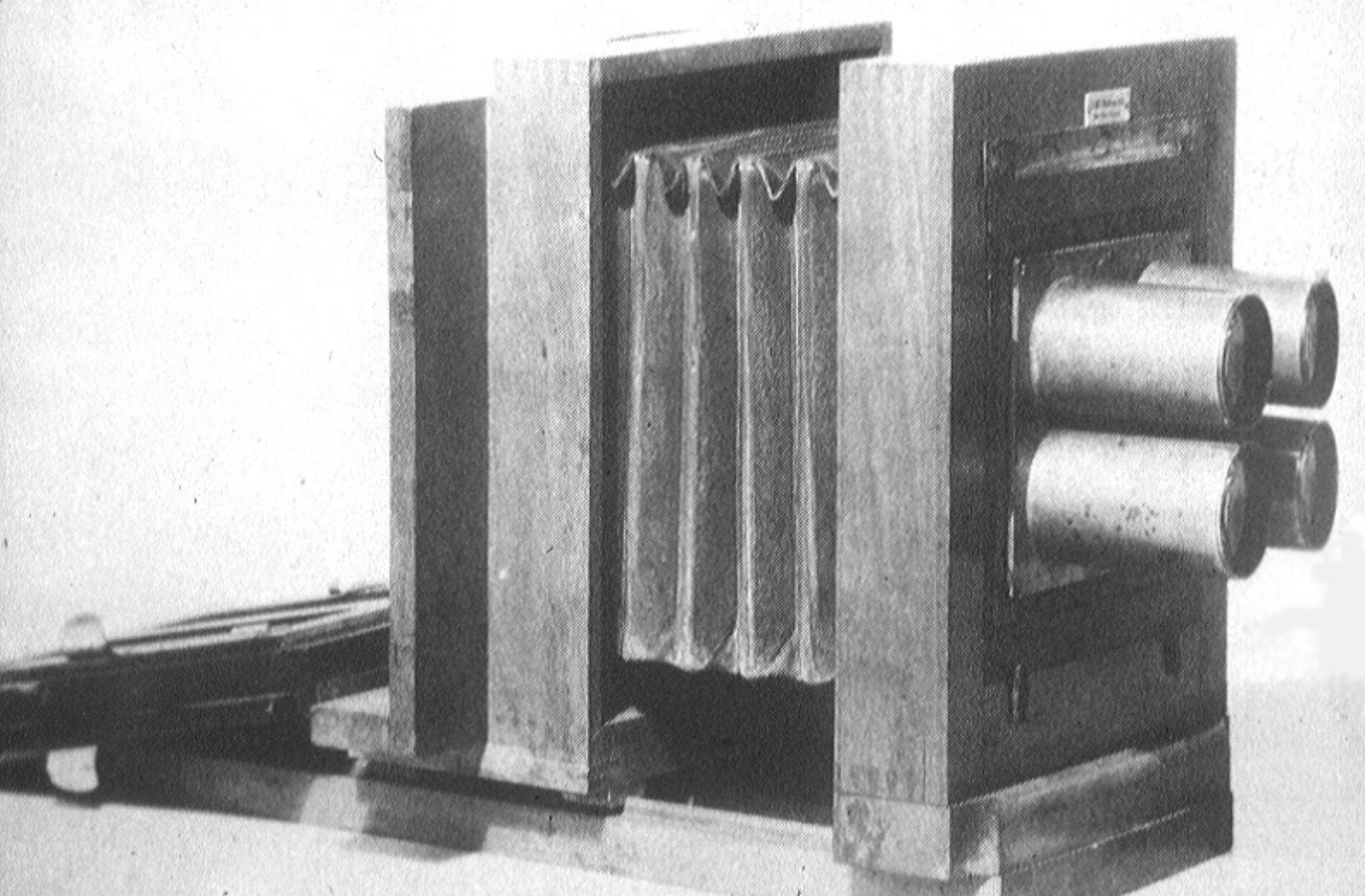
Process used glass collodion plates, exposed for about 15 - 30 sec. in the studio. Neg printed on albumenized paper, but developed out by sunlight, then gold toned to a brownish tint. Mass production of these cartes heralded the start of the mass media (to be followed by cabinet cards, then stereo-graphs, and later picture post cards). It was easier and much cheaper to make hundrends of copies of cartes than to use the expensive woodburytype process to ink-reproduce photos.

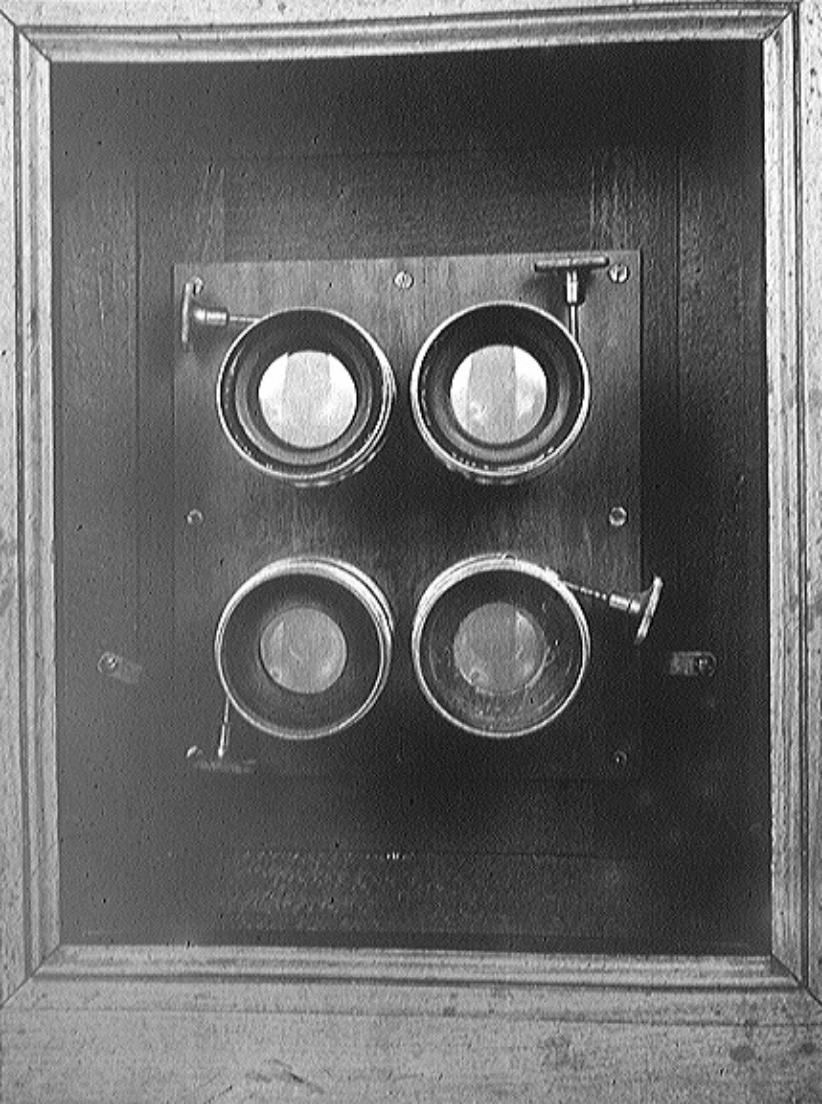
Cartes-de-visites con't

Mass distribution of photos of royalty, politicians, actors, side-show freaks, erotica, criminals, etc.

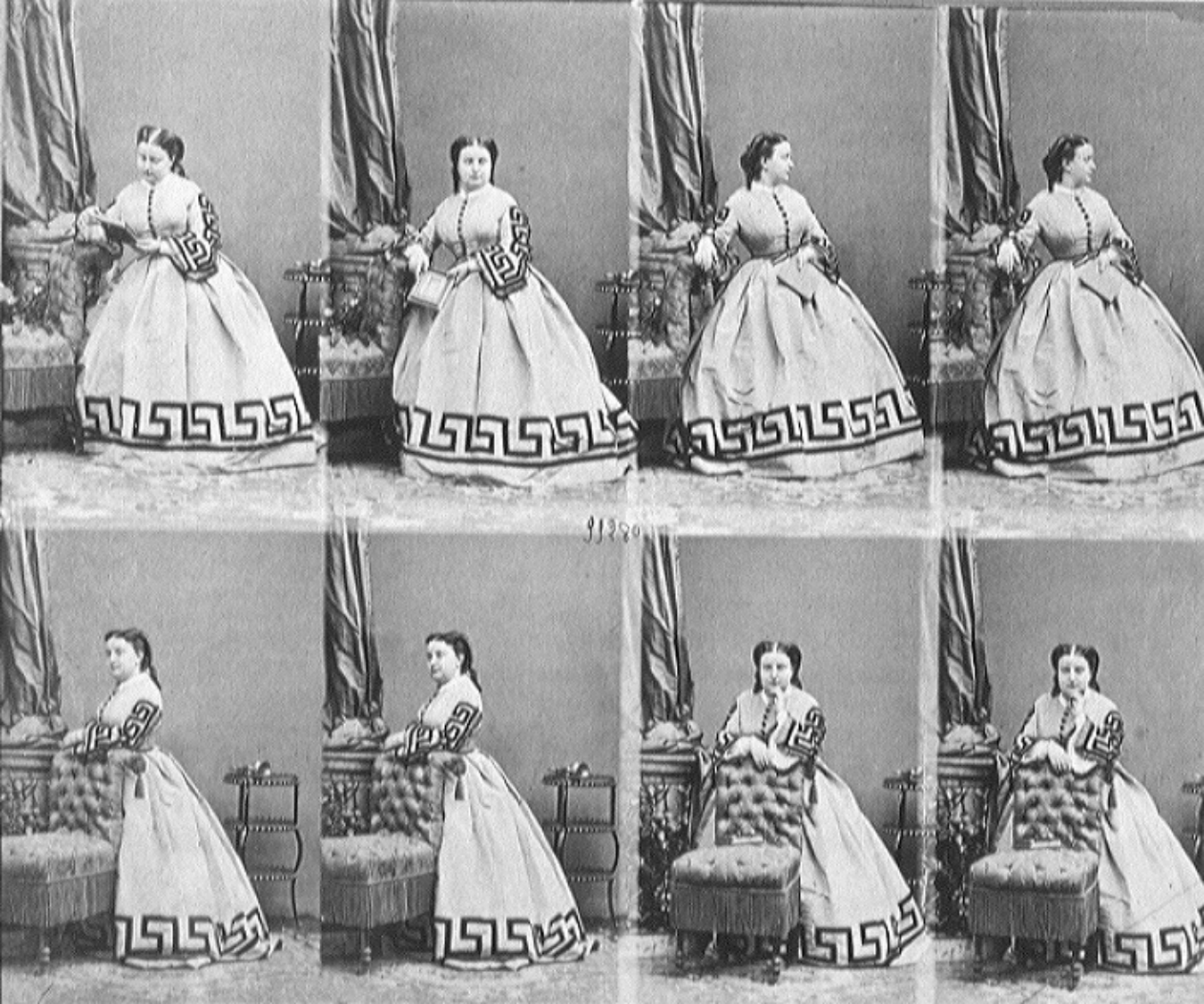
Disderi was, by 1860, shooting 1600 (8 shots per plate) plates per month. The Anthony Firm in US was making 3600 card prints per day.

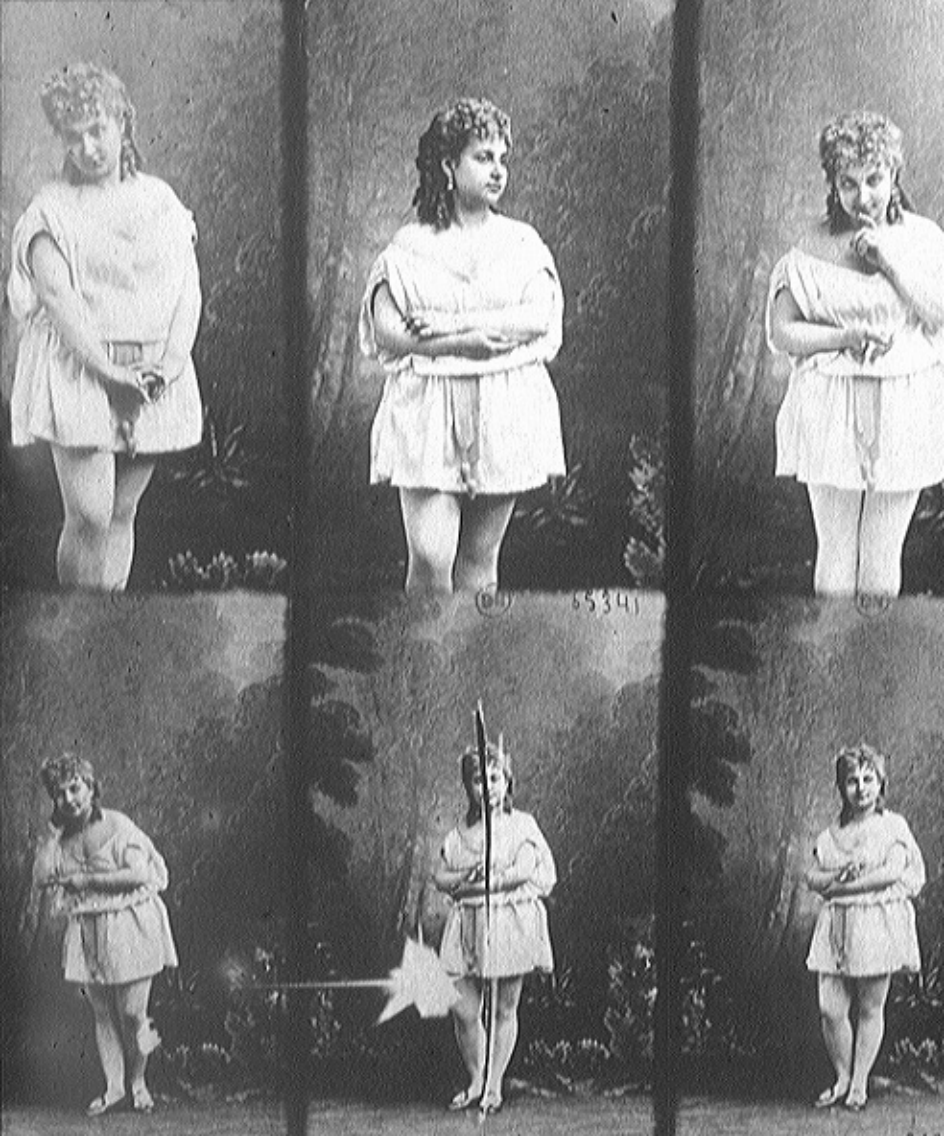
From Sept. 1 1864 - Aug 1 1866, USA levied a 2-cent tax stamp on the back of any card sold as revenue to pay off the Civil War debt.

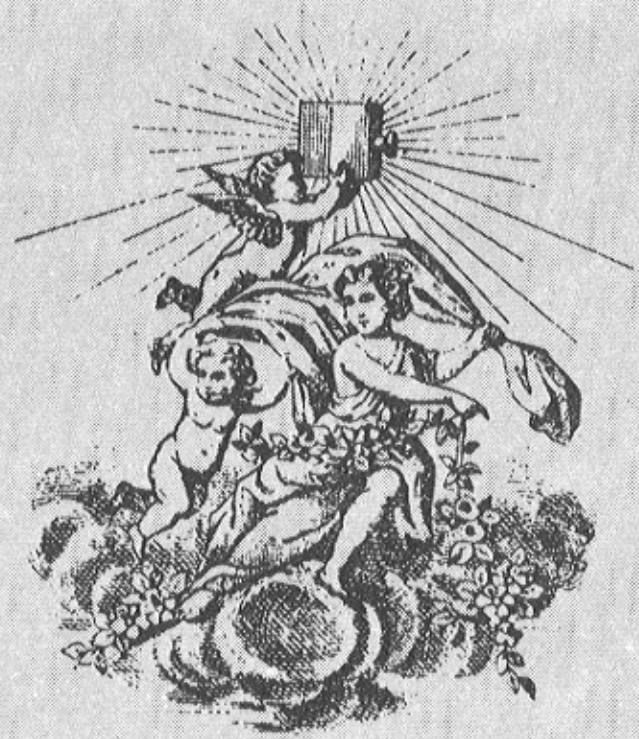










J. LAING

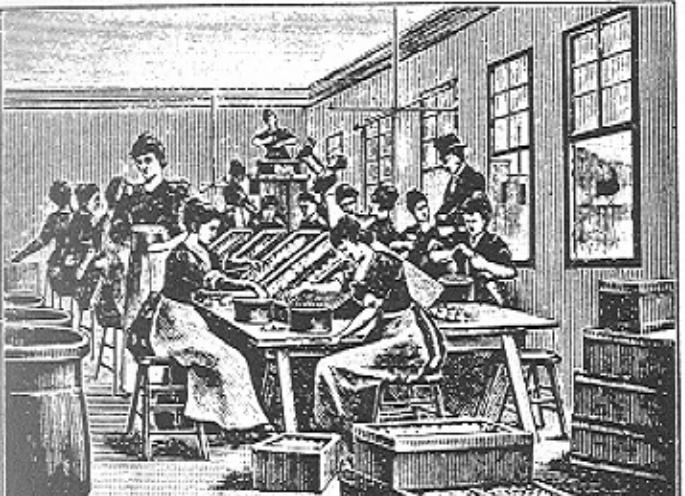
Castle Street - Shrewsbury

& 3. Queen Street - Wellington

Salop.

PATRONIZED BY VISCOUNT HILL,

LORD LIEUTENANT.



1776. 1876.

THE

DREAMING IOLANTHE,

King Rene's Daughter, by Henrich Herz.

A STUDY IN

BUTTER,

BY

CAROLINE S. BROOKS,

DAUGHTER OF

ABEL SHAW.

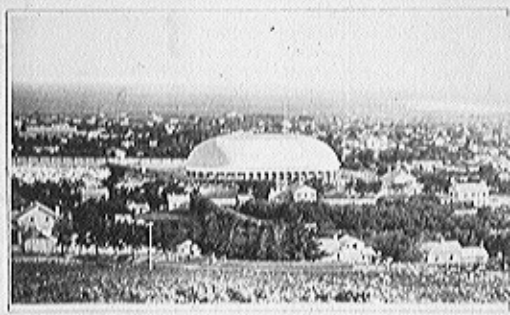
The tools used were a common butter paddle, cedar sticks, broom straws, and camel's hair pencil.

Nine pounds of Butter were used in modeling this subject.

Brogi, Giacomo. *Madonna Addolorata*, by Carlo Dolci, no. 357. Florence, ca. 1865.

251. Brockmann, F. & O. *Madonna and Child*, by Holbein, no. 29. Dresden, 1863.

244. Savage, C. R. Utah. Court House, Salt Lake City, ca. 1870.



245. Savage, C. R. Utah. View of Salt Lake City and Mormon Tabernacle, ca. 1868.

Soule, John P. Sentimental Series: *Shadow*. Boston, 1864.

265. Soule, John P. Sentimental series: *Practicing*. B 1865.

The Presidents of the United States.

GEO. WASHINGTON - 1st.

JOHN ADAMS - 2d.

THOS JEFFERSON - 3d.

JAMES MADISON - 4th.

JAMES MONROE - 5th.

J. Q ADAMS - 6th.

ANDREW JACKSON - 7th.

M. VAN BUREN - 8th.

Wm. H. HARRISON - 9th.

JOHN TYLER - 10th.

JAMES K. POLK - 11th.

ZACHARY TAYLOR - 12th

MILLD FILLMORE - 13th

FRANK PIERCE - 14th.

JAS BUCHANAN - 15th.

A. LINCOLN - 16th.

ANDREW JOHNSON - 17th

Mortuary. Portrait of an infant, "taken while dying,

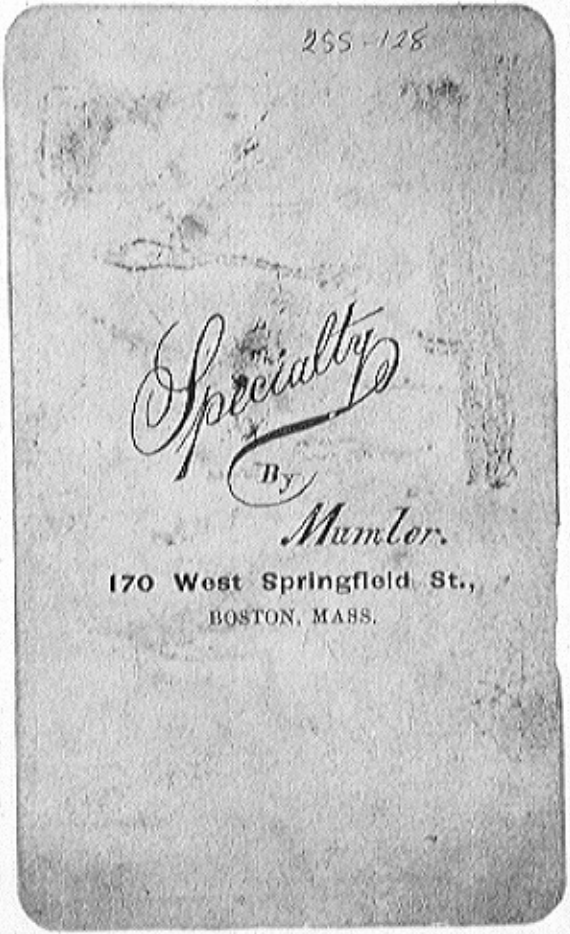


FIG. 10-6. Mumler's Ghost Photography I. Carte-de-visite, recto and verso, albumen print of the 1860s by William H. Mumler of 170 West Springfield Street, Boston, Massachusetts; Mumler was also active at 630 Broadway, New York.

I 8 50

HISTORY OF A PICTURE.

Come and sit upon your father's knee, my little one, for to-morrow I must leave you. This may be my "last visit home." And the soldier pressed the little girl of four summers close to his brave, stout heart.—Seven days later, at sundown, the soldier slept on the battle field. His boy and girl were orphans. He went to meet her who but a few weeks before had gone to prepare the way for him. This was indeed the soldier's "last visit home." But ere he died the bright sun of heaven portrayed a living picture. Without the aid of imagination, every lineament is perfection; every line is life. Call at Evans' Photographic Parlors and see the group; it will cost you nothing. And when you are in your own happy circle, you will remember the "Soldiers last visit Home."

Soldier & 2 children before killed in battle

1270

Mortuary. Mourning carte for a Civil War Soldier killed seven days after the portrait was taken. Both sides of card bordered in black. C. Evans, Philadelphi ca. 1863. Courtesy of Henry Decks

P. Graney

D. Richards

M. Murphy

M. Bumgardner

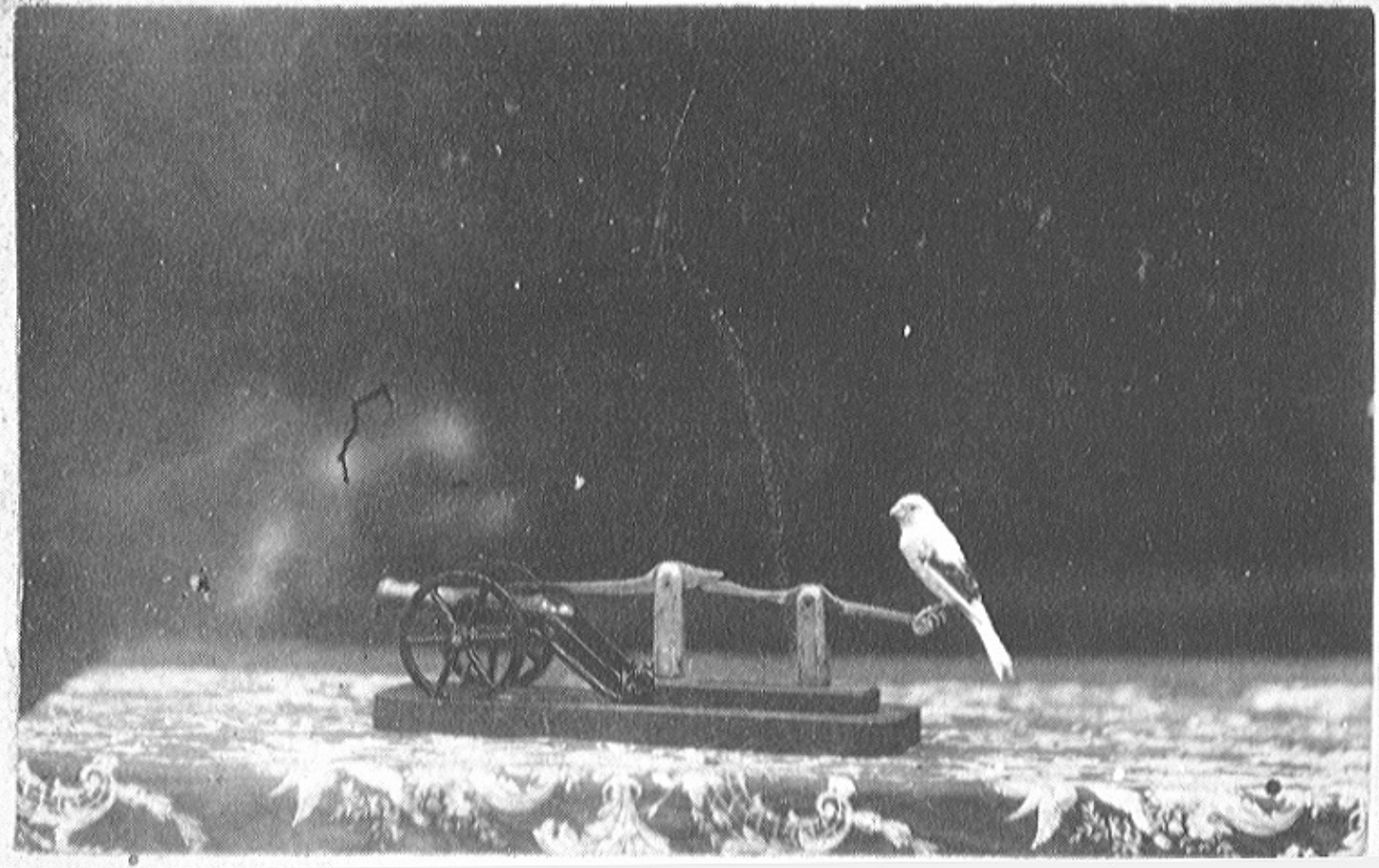
S. Hammond

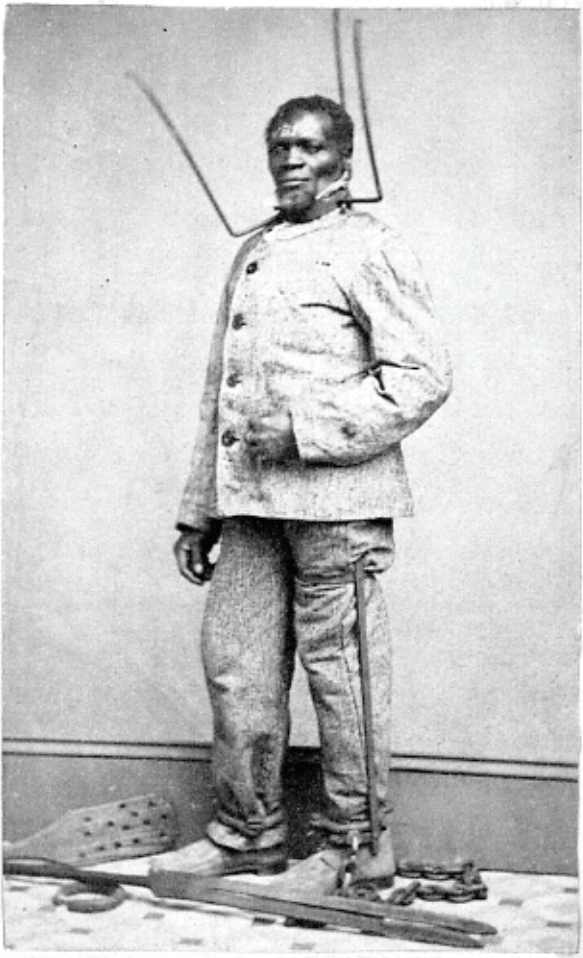
J. Curlin

FIG. 9-24. Carte-de-visite montage-caricature of a bookkeeper, c. 1870s. American. Unknown photographer.


Maj Pauline Cushman
Souvenir

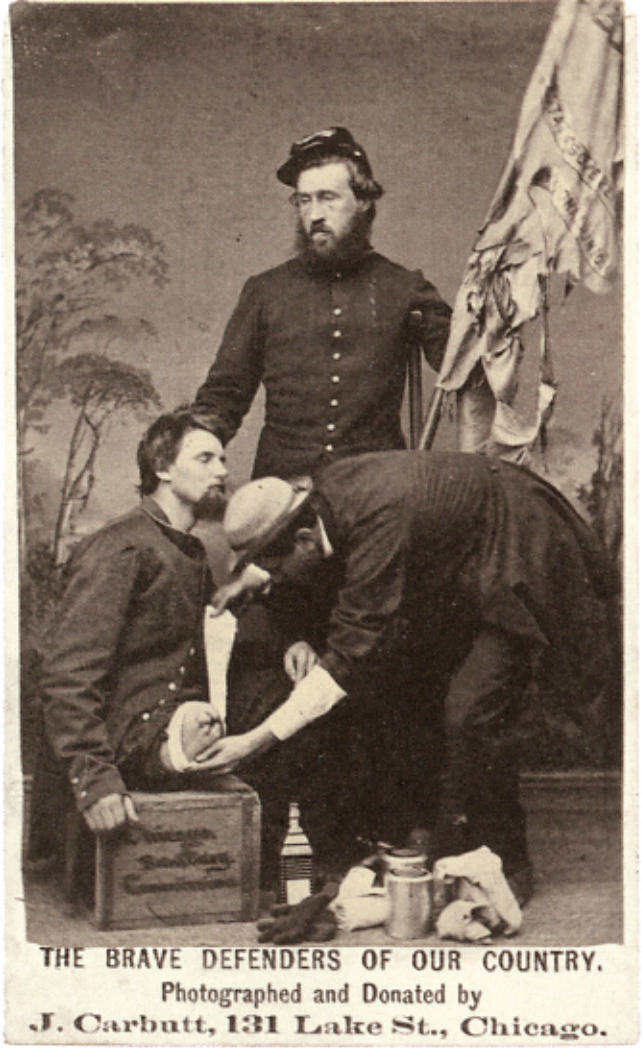

Lady Adela Larking
Lady Mary Butler
Miss Turner





WILSON CHINN, a Branded Slave from Louisiana.

Photographed by KIMBALL, 477 Broadway, N. Y.



349 **John Carbutt,** *The Brave Defenders of Our Country*, 1863

350 **Unknown Maker,** *Sojourner Truth*, 1864

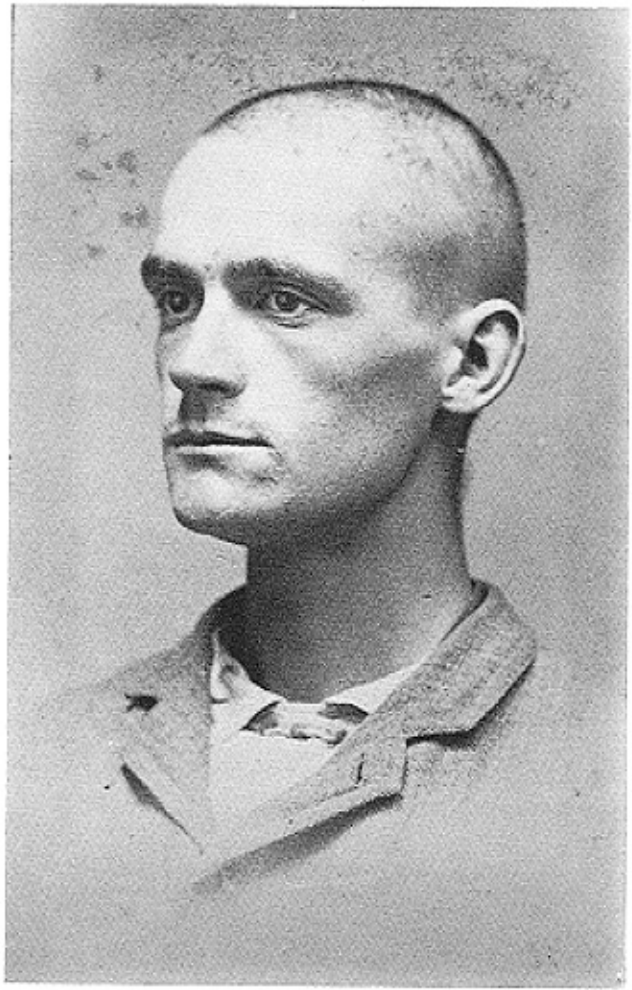
"OLD BETZ."

Sioux Squaw. (Said to be 120 years old.)

Eisenmann, Charles. I. W. Sprague, The Thin Man with his family. Age 40, weight 46 pounds, height five feet five inches. New York, ca. 1877.

FIG. 6-2. Betts-Hough Marriage Certificate, 1873. Probably Pennsylvania. Unknown photographer. Preprinted sheet, 12 × 9 inches, with inserted cartes-de-visite; hand-colored. Templates of a similar type were also produced for memorial certificates and general family histories (Fig. 4-23d).

No 21
Bethlehem
Mt Barton



Name Elmer B. Scott
Alias, C. C. Ellis
Crime, Horse Thief
Age, 28 Color, Khyle
Born Providence R. I.
Trade, Painter
Read, Yes Write, Yes
Married, Yes Build, Stout
Height, 5 - 8 Weight 130
Hair, Light Eyes, Blue
Nose, Straight Face, Mustache
Complexion, Light
Marks, Fair freckled
Officer,
Date of Arrest,
Remarks, Wanted by
District Police Marlborough
Northampton Mass

FIG. 10-3. Mug shot, with crime record on the verso. Carte-de-visite by unidentified New England photographer. 1860s–1870s. Elmer B. Scott, alas, was allegedly a horse thief.

The Cabinet Card

The smaller cartes-de-visites lost favor with the public due to lack of facial detail; G.W. Wilson of London proposed a new larger print size: 5 1/4 x 4 in.

This new "cabinet card" became a commercil success by 1866 when it was offered by the London studio of F. R. Window; he offered 3 print sizes (all mounted on a 6 1/2 x 4 1/4 in. card mount):

No.1 -- 5 1/4 x 4 in.
No.2 -- 5 3/4 x 4 in.
Special -- 6 x 4 1/4 in.

Cabinet cards served the same variety of functions as the cartes did; they were most popular from 1870 - 1880, until stereographs took over as the craze.

Fig. 2: A typical photo by Manó Mai, in his own studio (unknown persons, after 1900, as dated from the verso From the collection of Mai House)


CSÁSZ ÉS KIR
udvari fényképész
Mai és Társa
BUDAPEST
NAGY MEZŐ U. 30 SZ. SAJÁT HÁZÁBAN AZ ANDRÁSSY ÚT KÖZELÉBEN.
A „Wiener Photogr Gesellschaft"-tól kiváló kitüntetés szakirodalmi működésért.
Számos kiállítási aranyérem és díszoklevél.
TELEPHON No
Az Ezredéves Orsz. Kiállítás körül szerzett kiváló érdemek méltánylásául királyi elismerés
JURY-TAG
JURY-TAG
JURY-TAG
PARIS 1900 ARANY ÉREM
Alapíttatott 1879 ben.

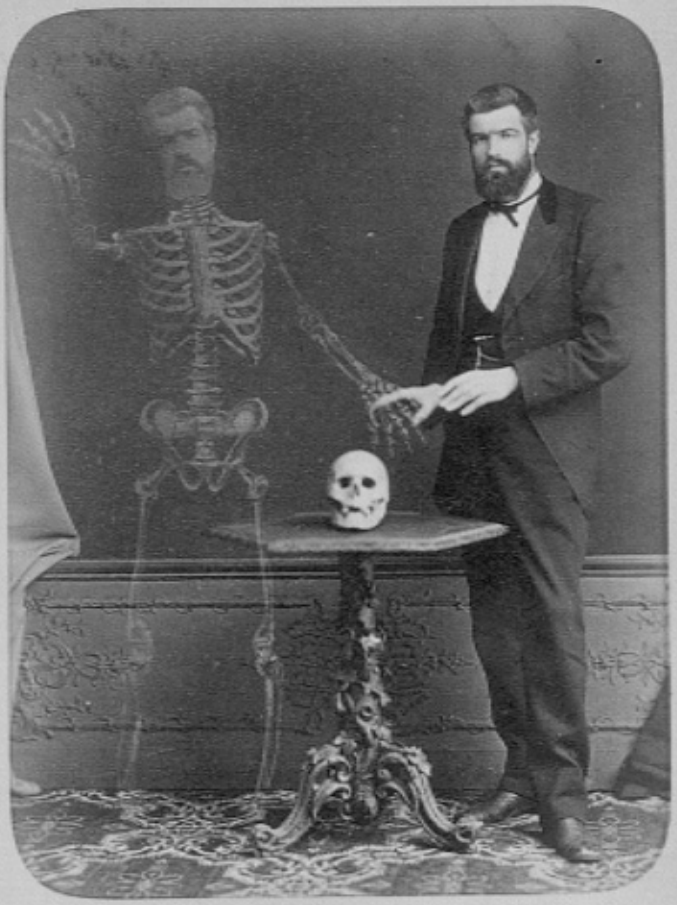
K. Mollenhauer

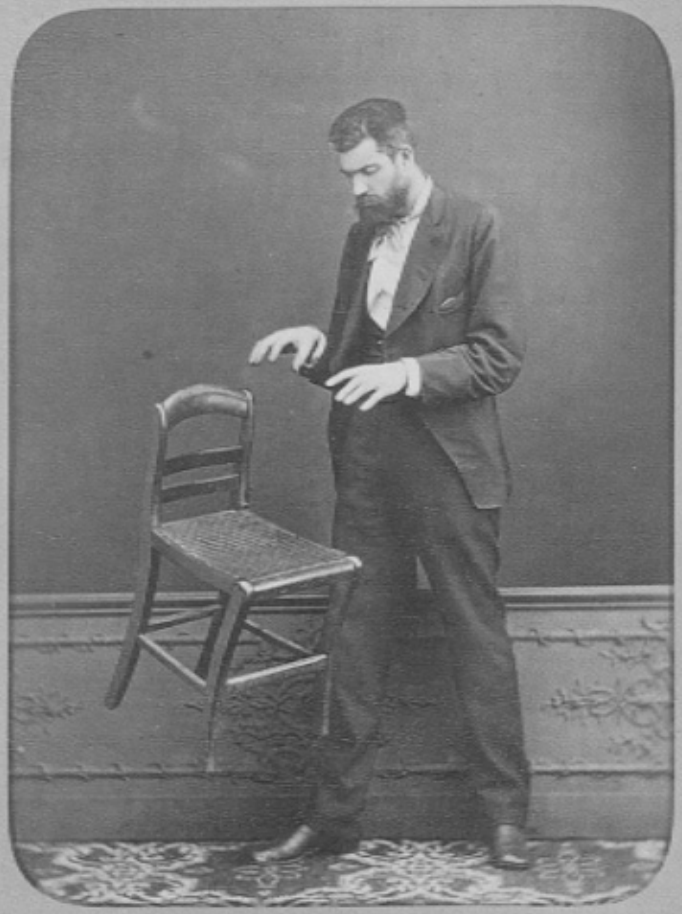
FULDA
Friedrich-Str. 24.

New York Gallery 411 N. Sixth St. READING, PA.

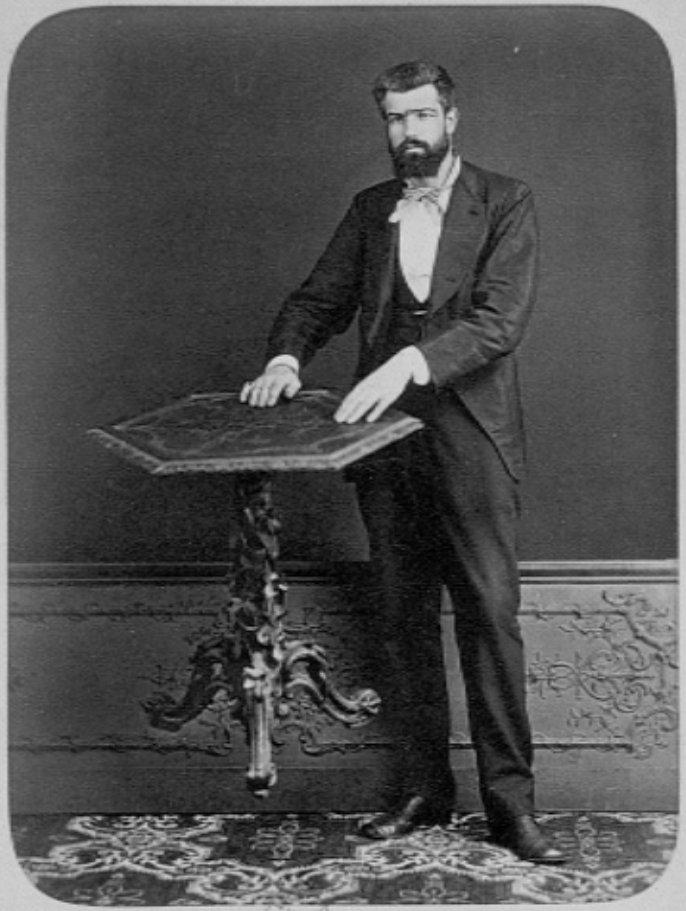
PHOTO. HAMBURG, PA.

FIG. 7-19. "Dr. Jekyl [*sic*] and Mr. Hyde on View." Cabinet card by Van der Weyde, London. 1888. Henry Van der Weyde, an expatriate American portrait painter, was the first photographer in London to use electric light in his studio. Note logo: "The Van der Weyde Light."





Effet Fuidique.



Attraction Médianimique

2730

E. R. ESTABROOK,
PHOTOGRAPHER
And Insurance Agent,
Hoosick Falls, N. Y.

Fire, Life and Accident Insurance effected in Reliable Companies.

☞ Duplicates furnished at any time.

(a)

RUSSELL & WASSERMANN.
PHOTOGRAPHERS,
Atkins, Ark.
WATCHES, CLOCKS & JEWELRY REPAIRED.

Ground Floor Gallery.

GEORGE H. HEDLEY,

Artist & Taxidermist,

BROWN'S BLOCK,
MEDINA, N. Y.

Negatives Preserved.

(c)

261

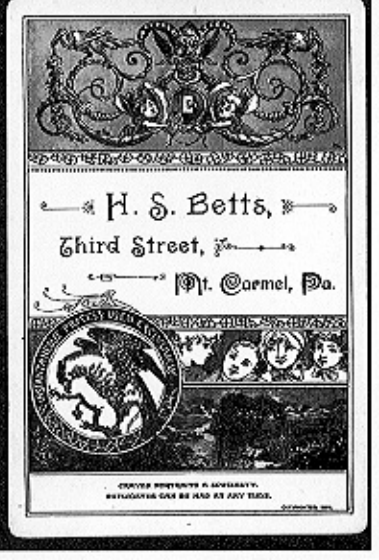
HARTER'S
Fine Art Gallery,
93 Genesee-St.
AUBURN, N. Y.

THE
Davis Sewing Machine,
Pianos & Melodeons,
FOR SALE AT
HARTER'S.


ARTISTIC
R. A. BONINE,
Fourteenth Street,
and
Eleventh Avenue,
Altoona, Pa.
PHOTOGRAPHY


Strunk,
Artistic Photographer,
730 Penn Street,
Reading, Pa.


PUBLIC
P. Leidigh Gross,
PHOTOGRAPHY
BETHLEHEM.


H. S. Betts,
Third Street,
Mt. Carmel, Pa.

Three Significant New York Studios famous for their cabinet cards

William Kurtz Studio

Napoleon Sarony Studio

Jose Maria Mora Studio

Data on Cabinet Cards

These larger cards sold from about $12/dozen.

Process:

1) glass plate coated with albumen and with collodion.
2) plate sensitized via silver nitrate solution, exposed while moist and developed in pyrogallic acid.
3) Fixed in potassium cyanide rather than hypo as it gave the print more contrast.
4) Print paper was albumenized salt paper sensitized by bathing in silver nitrate and then fuming with ammonia to make it even more light-sensitive.
5) Finally, print was gold-toned and fixed in hypo, result was a brownish tone.

the theatre had an enormous importance. Great actors enjoyed immense popularity . . . A publicity industry as it exists today was hardly known at the time, so that every man had to make his own publicity either through journalistic acquaintances, salon gossip, or by making himself conspicuous in some other way. Hence the theatrical way of life, poses, verbal violence, public quarrels.

William Kurtz

He set up a photo studio in NYC after the Civil War in 1865. He introduced "Rembrandt" lighting for portraiture and he eliminated elaborate backgrounds with their Rococo accessories. Juxtaposed light against dark in his compositions. He used a "counter reflector" to add light into the shadow areas.

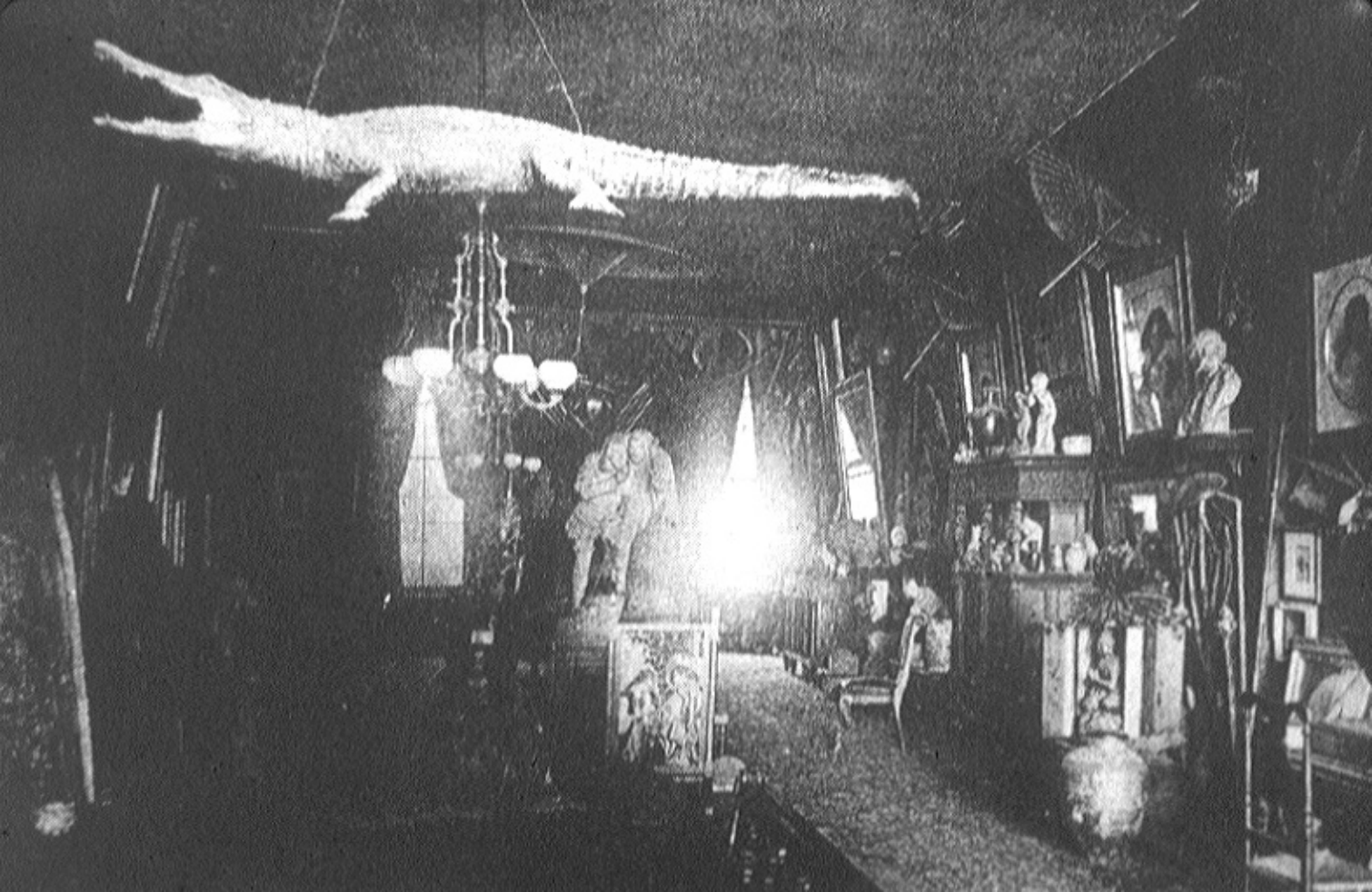
He won many awards, e.g., at the International Exhibition of Vienna he won its two highest awards in portraiture. He was first in USA to illuminate his sitters via electric light.

Napoleon Sarony

He catered to the celebrity/actor crowd and was known for wide range of exotic props, prompting one commentator to say Sarony's studio was "a dumping ground for the dealers in unsaleable idols, tattered tapestry, and indigent crocodiles.

He broke the standard of conventions of portraiture and so gained more expressiveness in his sitters.

Like Nadar, he was into self-promotion.



OSCAR WILDE.

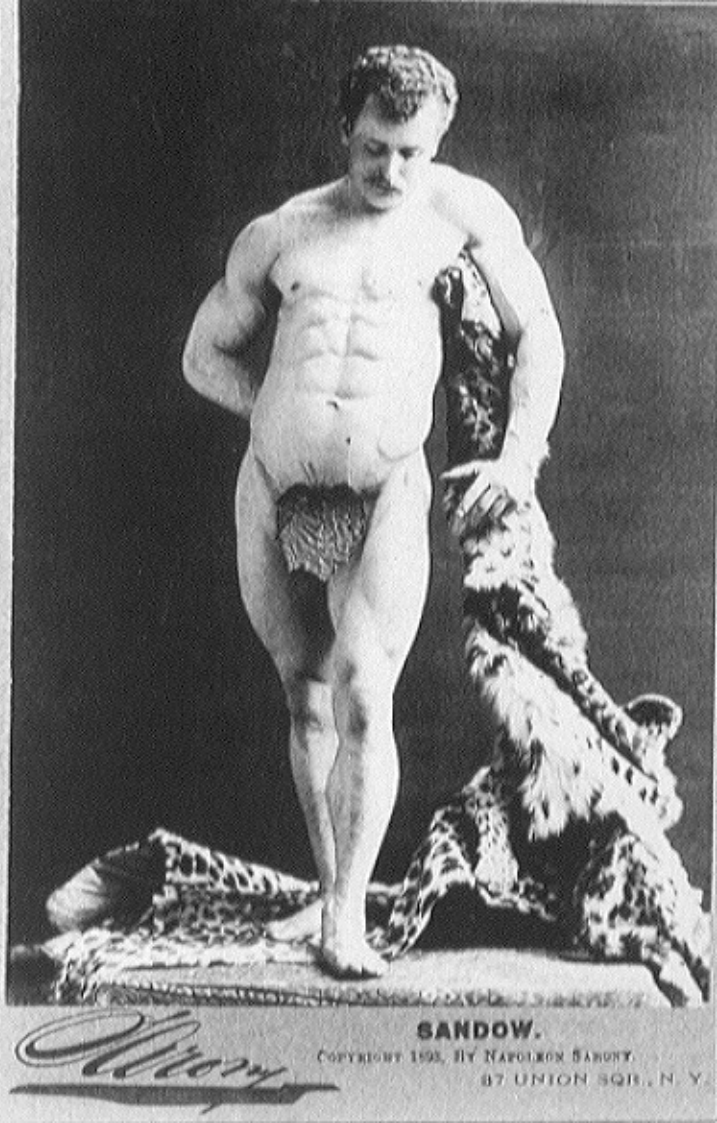
Sarony

37 UNION SQR., N. Y.

Sarony's interpretive eye found its perfect subject in Oscar Wilde. An Irish art critic and poet, Wilde was the world's most celebrated proponent of Aestheticism. With great intelligence and wit, Wilde encouraged a broader appreciation not only of art, but of the idea of the self as a kind of artistic creation. He cut an appropriately stylish —and sexually ambiguous—figure in his purple Hungarian smoking jacket, knee breeches, and black silk stockings. As the archetype of the modern aesthete or dandy, Wilde stood in direct opposition to what many perceived to be the stultifying pragmatism and materialism of the age.

At the start of this tour, Wilde went to Sarony's New York studio for a portrait session. By this time, celebrities had begun to charge photographers for the privilege of being recorded. This practice had started in 1867, when Charles Dickens—at the beginning of a tour of America—demanded a royalty from the sale of his likenesses. Sarony was known to have paid enormous sums to secure celebrity sittings: $1,500 to Sarah Bernhardt, for example, and $5,000 to "the world's most beautiful woman," Lillie Langtry. Notably, however, Wilde asked nothing from Sarony: he understood fully what could be gained from the public circulation of his likenesses and from the prestige attached to Sarony's name.

Sarah Bernhardt



SANDOW.

87 UNION SQR., N. Y.

E. C. BANGS, as "Sardanapalus."

FANNY DAVENPORT.

Jose Maria Mora

He trained under Sarony and by 1870 had opened his own NYC studio. During the 1870s his studio did the largest photographic business in the country.

He made most of his money from his "publics," cabinet cards of the stage celebrities of his day. For instance, 35,000 cabinet cards were sold of Maude Branscombe, an actress.

He was best known for his creative backdrops; as one commentator said: "He has more than fifty painted backgrounds [later growing toto 150] representing sea and sky, plains and mountains, tropic luxuriance and polar wastes; every style of scenery from Egypt to Siberia, mostly designed by himself, all executed with Seavey's [the man who first introduced them] unapproachable knowledge of photographic needs."

Mora 707 BROADWAY, N. Y.

Mora 707 BROADWAY, N. Y.

MARIE ROSE.

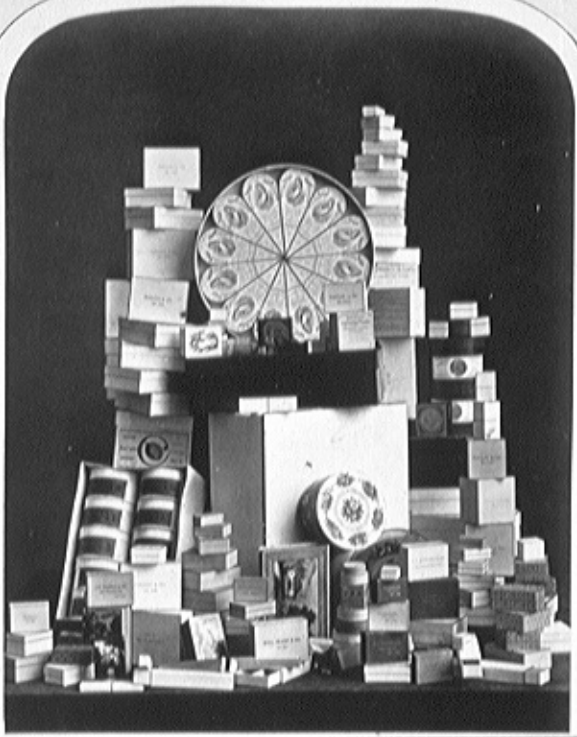
Mora 707 BROADWAY, N.Y.

EVELYN DERSTEN.

Mora 707 BROADWAY, N.Y.

Photography, moreover, began, historically, as an art of the Person: of identity, of civil status, of what we might call, in all senses of the term, the body's *formality*.

It was not on the exalted heights of autonomous Art that photographic portraiture made its lasting place, but in a profane industry which furnished the cosier spaces of the bourgeois home. And not only there.



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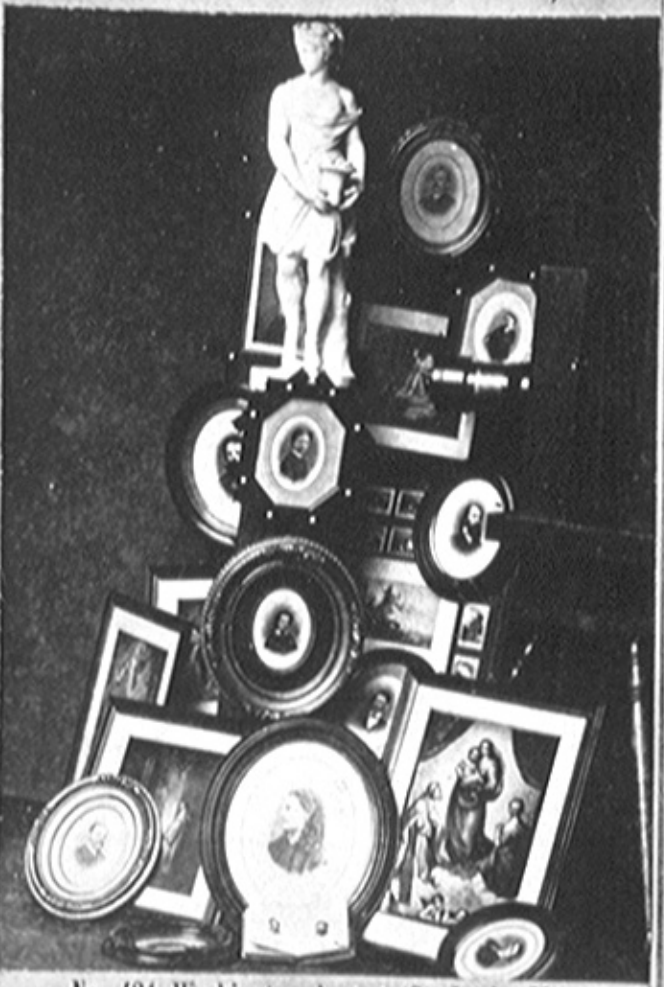


No. 421 Washington Avenue, St. Louis, Mo.

Stereograph

A brief history:

1) Sir Charles Wheatstone (1802 - 1875) discovered the stereoscopic effect of binocular vision and invented the reflecting (mirror) and the refracting (lens) stereoscopes, which he reported to the Royal Society in 1838. He used hand-drawn imagery in his work.

2) Sir David Brewster (1781 - 1868) invented a lenticular stereoscope that used separate eye-piece lenses; this design supplanted Wheatstone's mirror system and was put into into commercial production by Louis Jules Deboscq in 1851. He also proposed the twin-lens camera in 1849, and John Benjamin Dancer of Manchester and A. Quinet of Paris in 1852 constructed it. This camera's neg. size was 3 1/2 x 7 in. with 2 images on it.

Stereograph

Brief history con't:

3) 1840 Antoine Claudet designs a shifting lens for a D-type camera and a D-type stereo viewer.

4) Southworth & Hawes invent their large, crank-operated stereo viewer that permitted multiple stereo viewing.

5) Langenheim Bros. of Philadelphia introduced commercially available stereographs in 1850; these were originally glassplate positives called "hyalotypes". In 1855, Langenheim's interest a group of Philadelphia businessmen to back a trip from Philadelphia to Niagara Falls on which they would make tourists stereo views to promote tourism and their new photographic product.

Stereograph

Brief history con't:

7) In 1859 Oliver Wendell Holmes wrote an essay "The Stereoscope and the Stereograph" for the *Atlantic Monthly* that helped to popularize their use; therein, he also called for libraries to collect stereographs for educational purposes In that same year he built his own stereoscope which became very successful.

8) Eventually, large stereograph companies evolved:
   a) The American Stereoscopic Co.
   b) London Stereoscopic Co.. (sold one million views in 1862).
   c)Ferrier of Paris
   d) Underwood and Underwood

Stereograph

Brief history con't:

9) Era of greatest popularity was 1854 - 1880 & 1890 - 1910.

10) Revival of interest in 1940 when the View Master was introduced.

11) In 1949 Kodak introduced their Stereorealist camera that enabled amateurs to shoot stereo on 35mm film.

12) In 1937 Hollywood produced a 3-D film comedy called *The Third Dimension Murder* (using a two-color process). Then in 1952 *Bwana Devil* is released and a craze for 3-D films took hold.

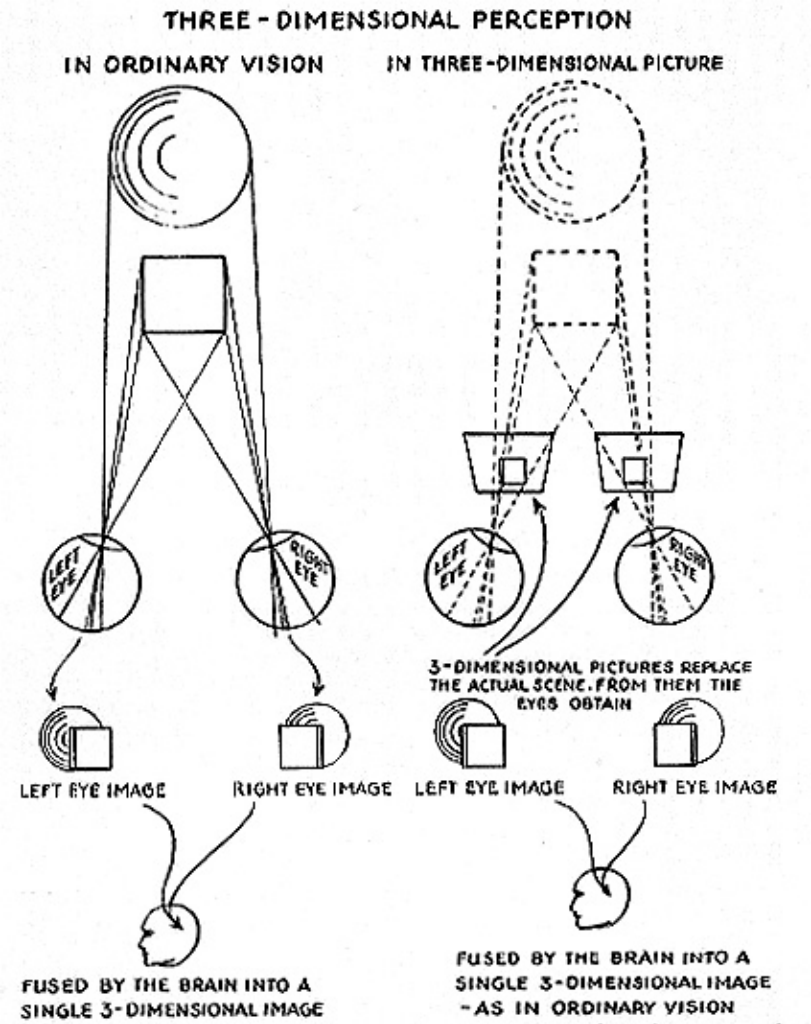
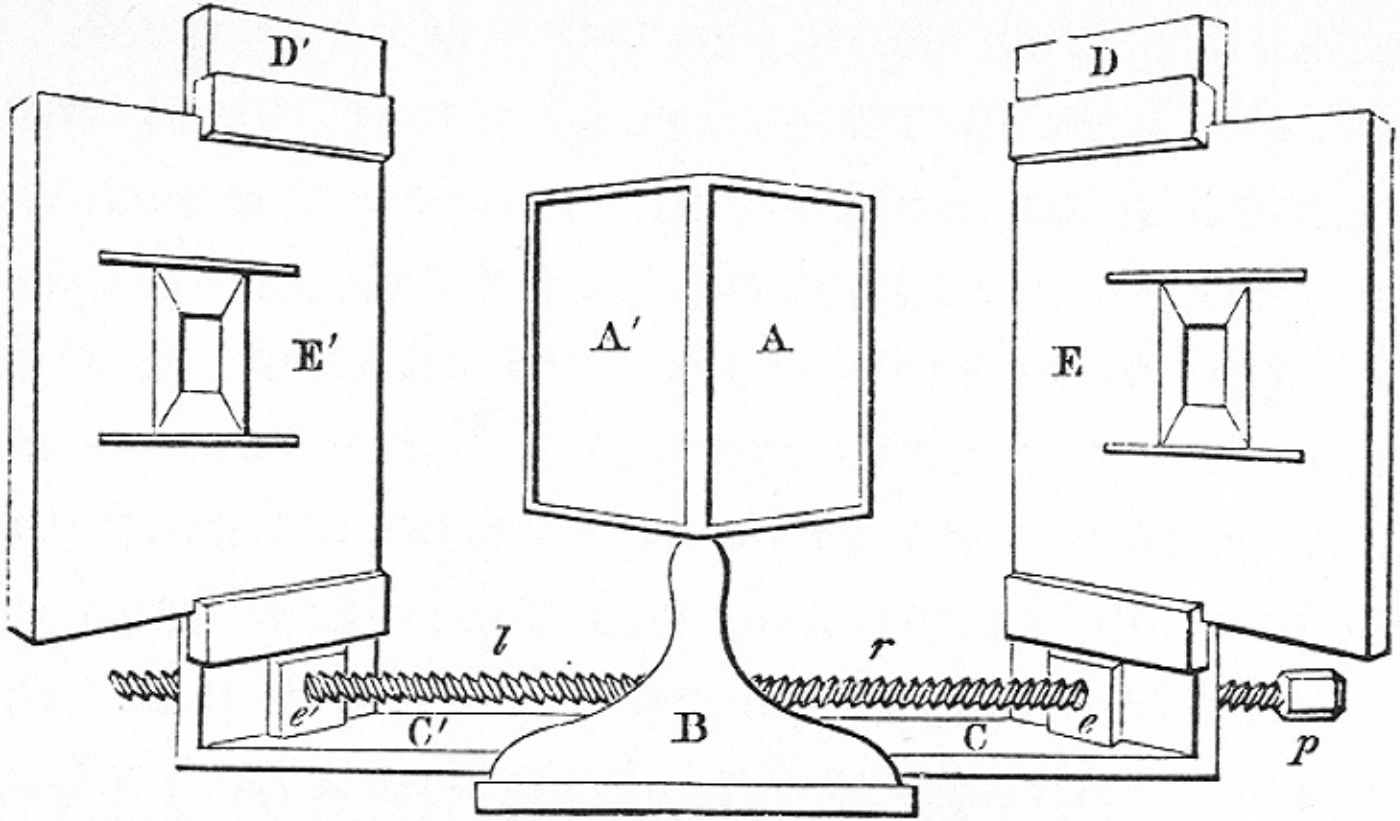


FIG. 1. In ordinary two-eyed vision, the images focused on the retinas of the two eyes are different. When the brain fuses the two images into one, it interprets the differences in terms of depth, solidity, and texture. Three-dimensional photography substitutes photographs for the objects themselves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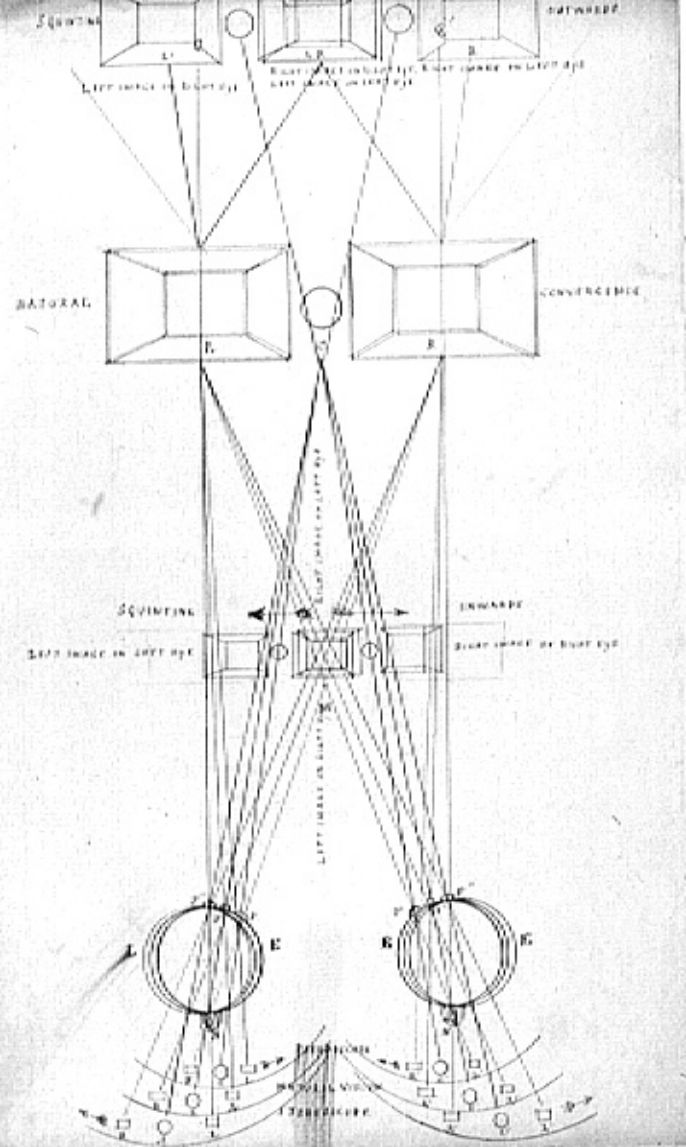
NATURAL
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SQUINTING
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Anaglyphic Stereo Process

In 1858 Dalinrida proposes using red & green filters over lenses to create the image separation for 3-D rendering.

In 1891, Louis Ducos Du Hauron invents a 3-D anaglyphic stereograph system.

In 1928 Edwin Land of Polaroid uses polarized lens process to achieve 3-D effect and in the 1939 NY World's Fair a 3-D film was done for the Chrysler Auto Corp.

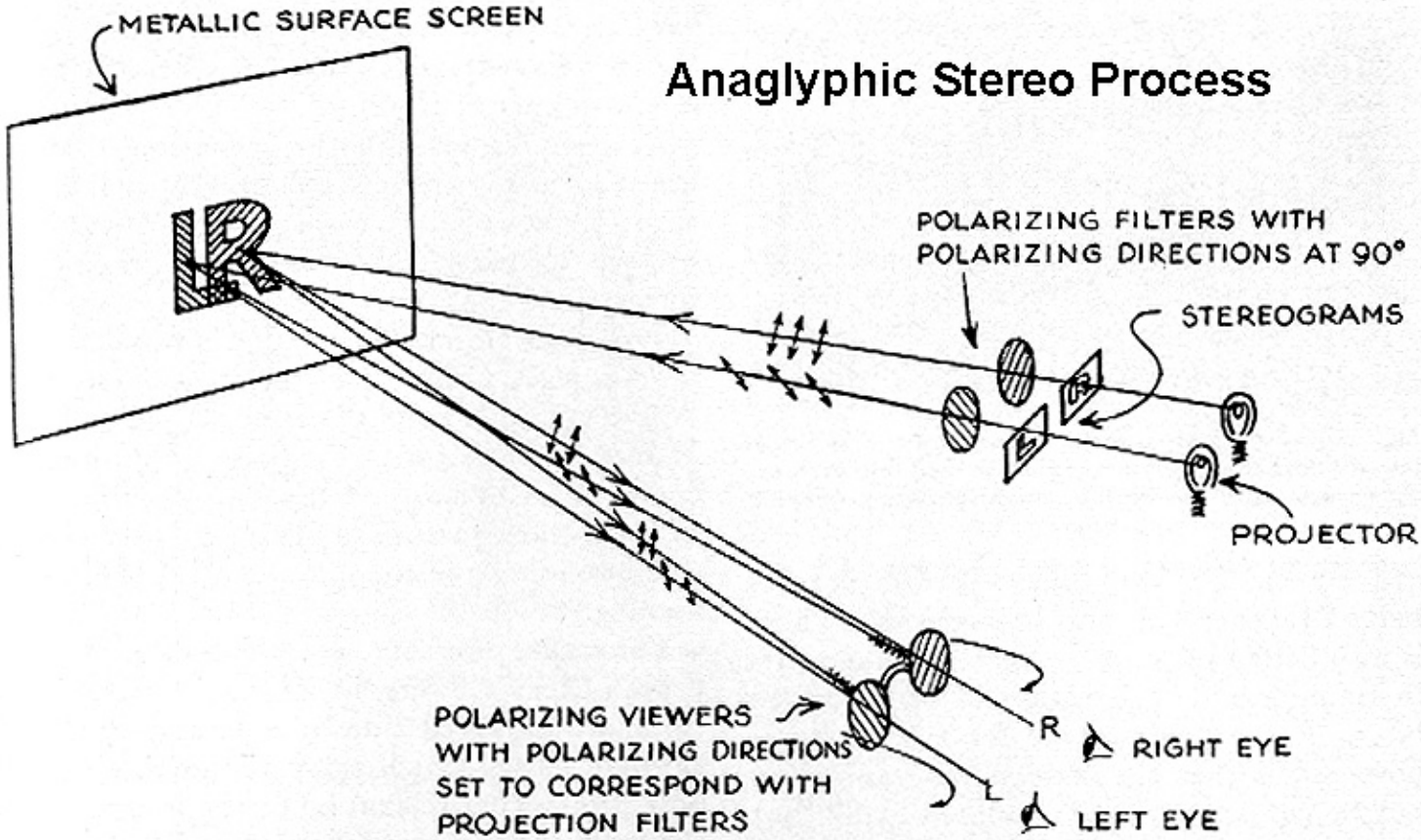
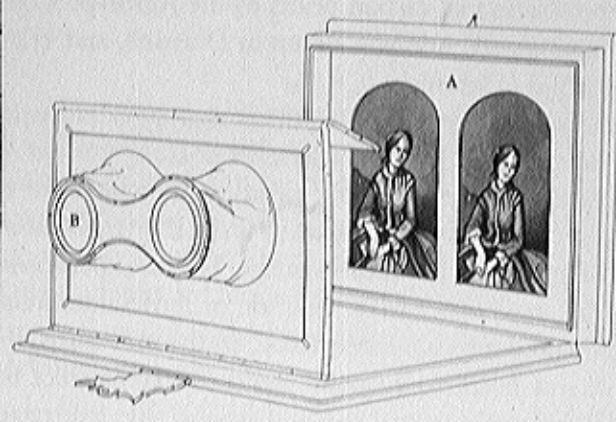
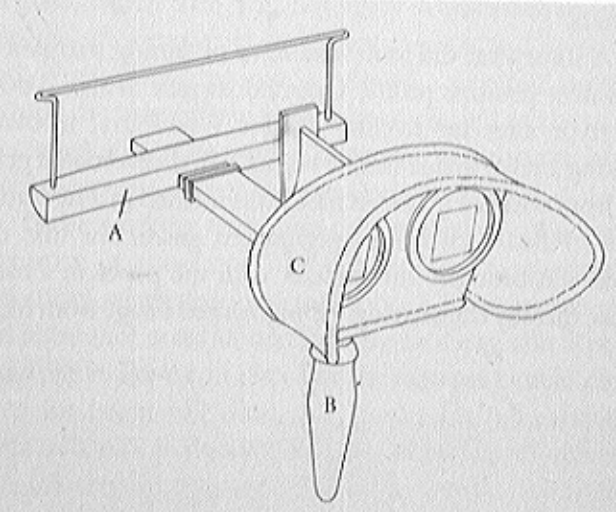
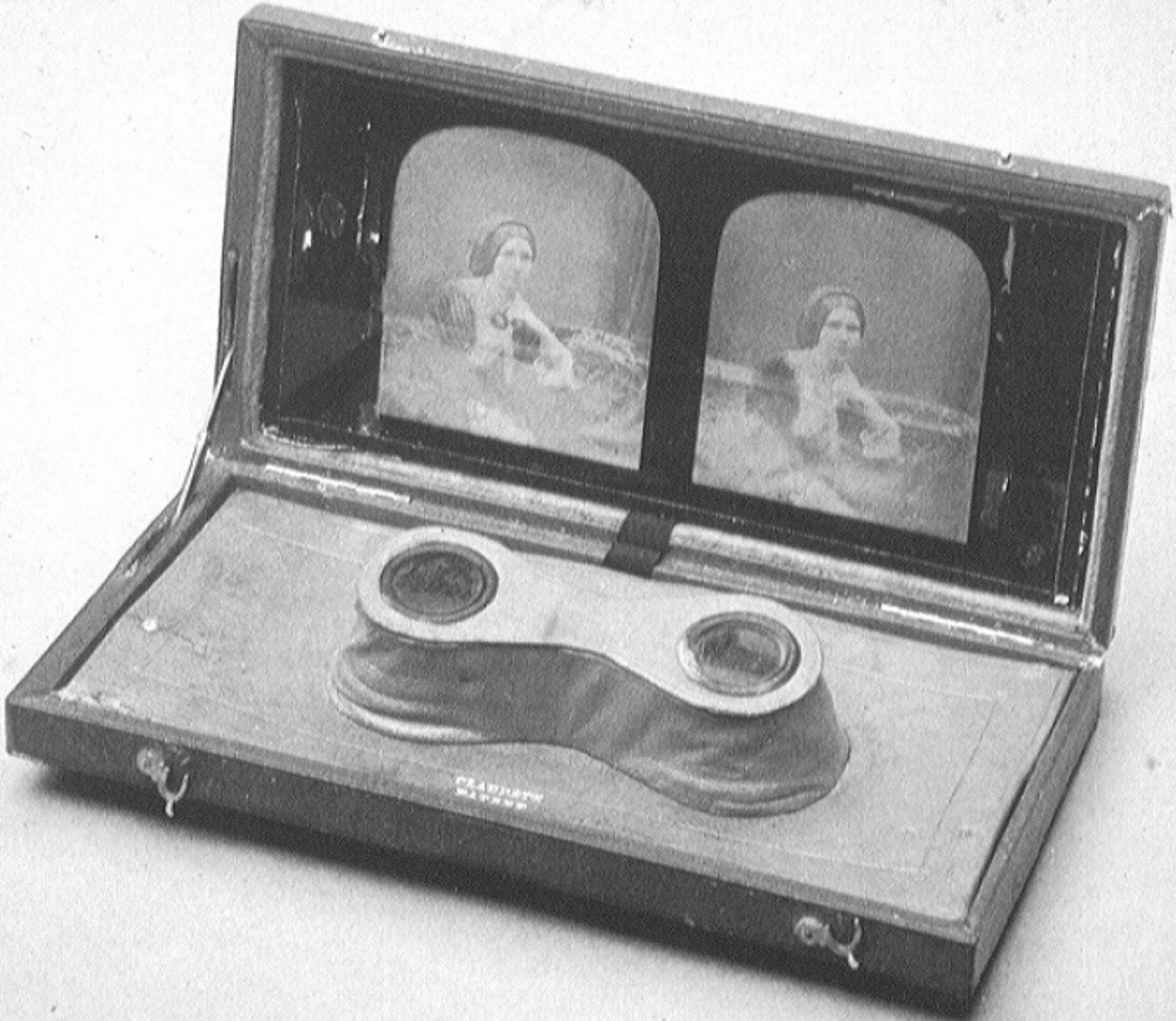


FIG. 10. Projection of completely successful three-dimensional pictures in full color was made possible by the invention of practical light polarizers by E. H. Land. The principle is diagrammed above



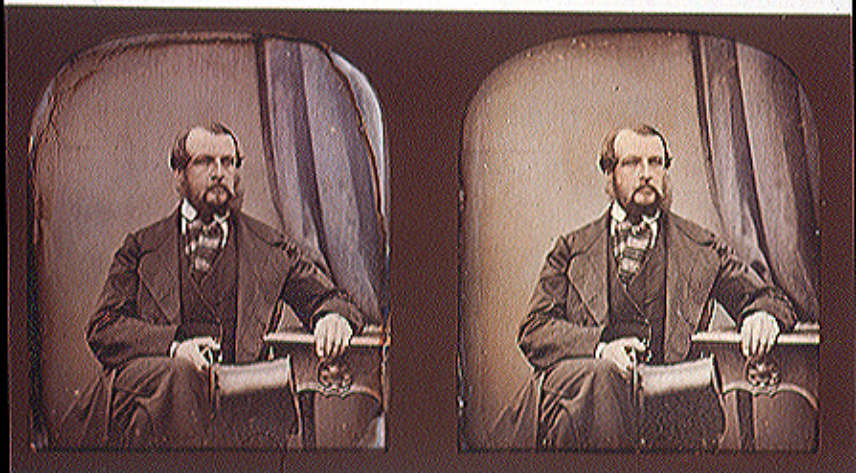
3. *Claudet Stereoscope.* The top opened up to form the ack, into which the stereoscopic daguerreotypes (A) ere fitted; the lenses (B) were set in telescoping mounts.

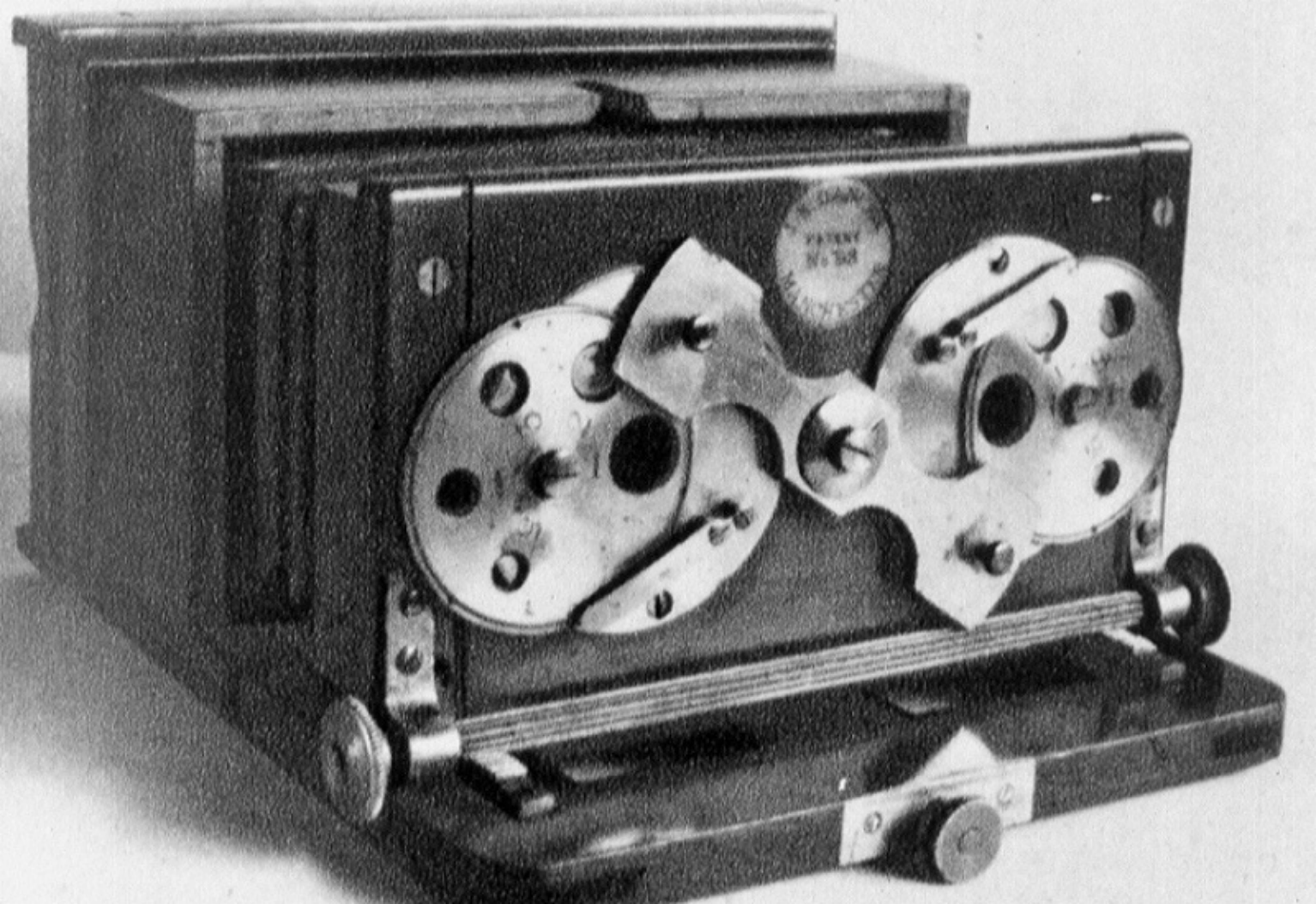


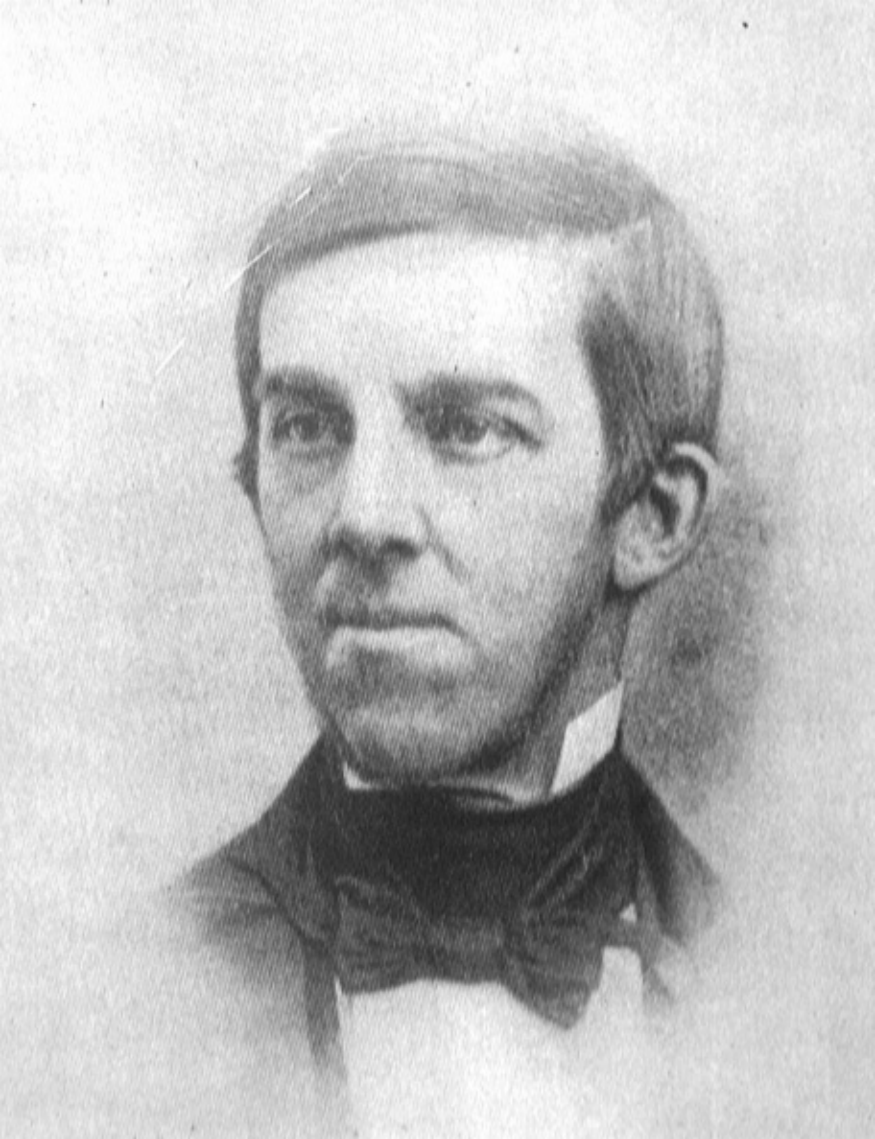



MASCHER'S IMPROVED STEREOSCOPE
PHILADA.
PATENT
MARCH 8TH 1853.

7. Antoine Claudet. Girl with flower basket.
ca. 1855. 96:168:116. (15.5)



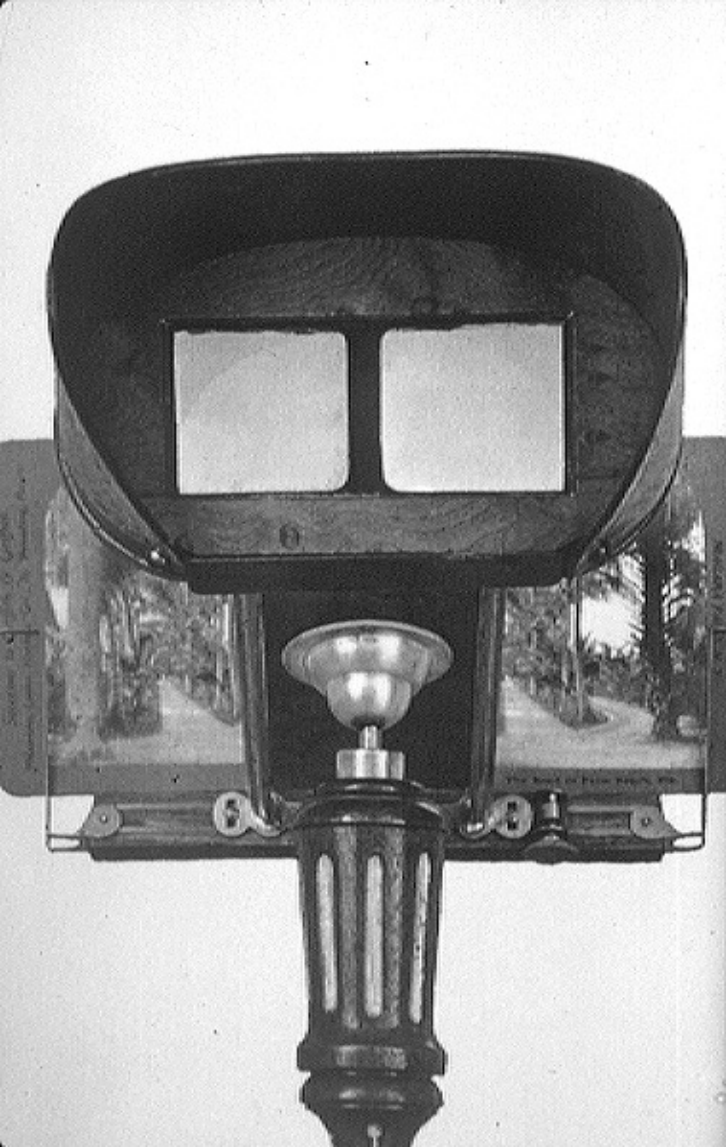


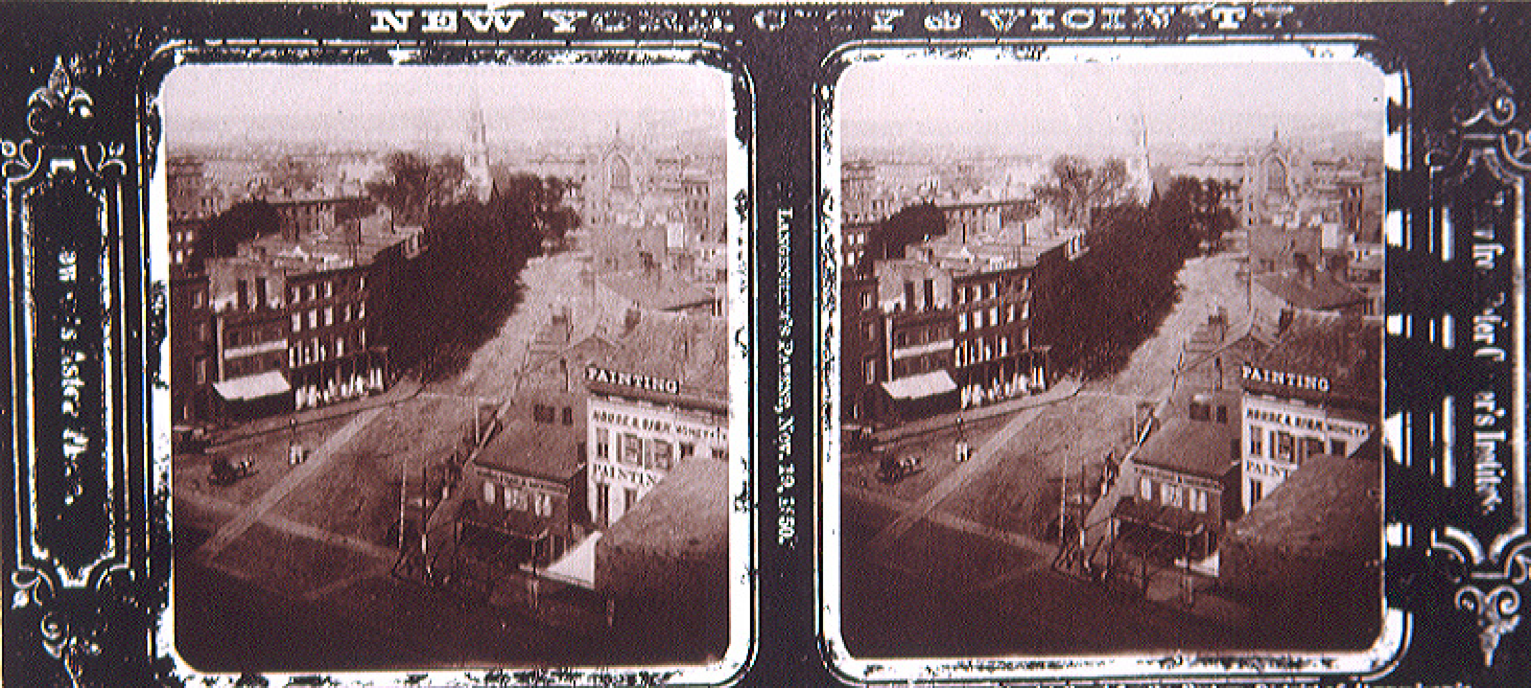


There is only one Colosseum or Pantheon; but how many millions of potential negatives have they shed—representatives of billions of pictures—since they were

Matter in large masses must always be fixed and dear; form is cheap and transportable. We have got the fruit of creation now, and need not trouble ourselves with the core. Every conceivable object of Nature and Art will soon scale off its surface for us. Men will hunt all curious, beautiful, grand objects, as they hunt the cattle in South America, for their *skins*, and leave the carcasses as of little worth.

Stereoscope enthusiast Oliver Wendell Holmes said of the experience, "The shutting out of surrounding objects, and the concentration of the whole attention, which is a consequence of this, produce a dream-like exaltation . . . in which we seem to leave the body





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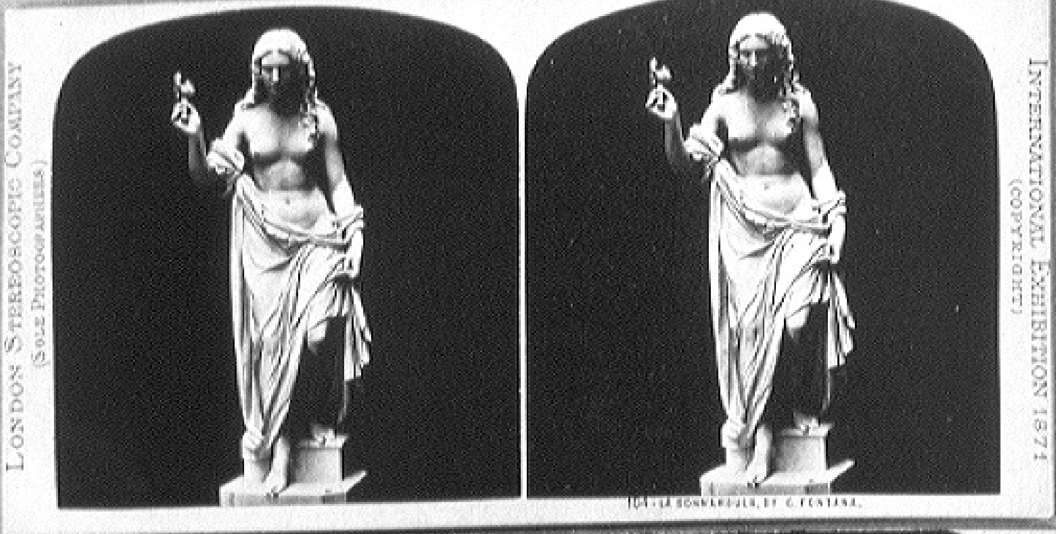
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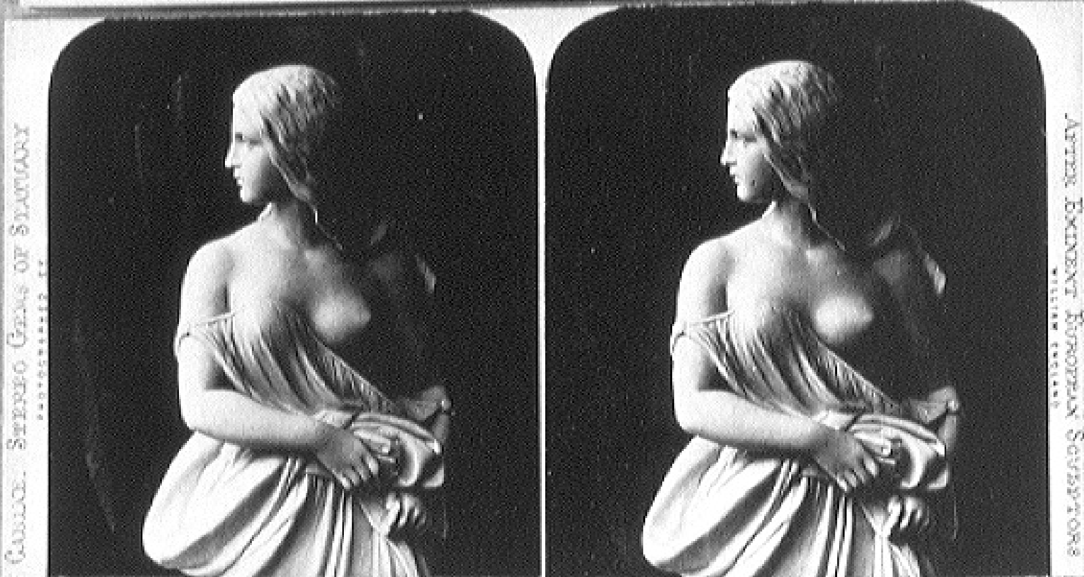
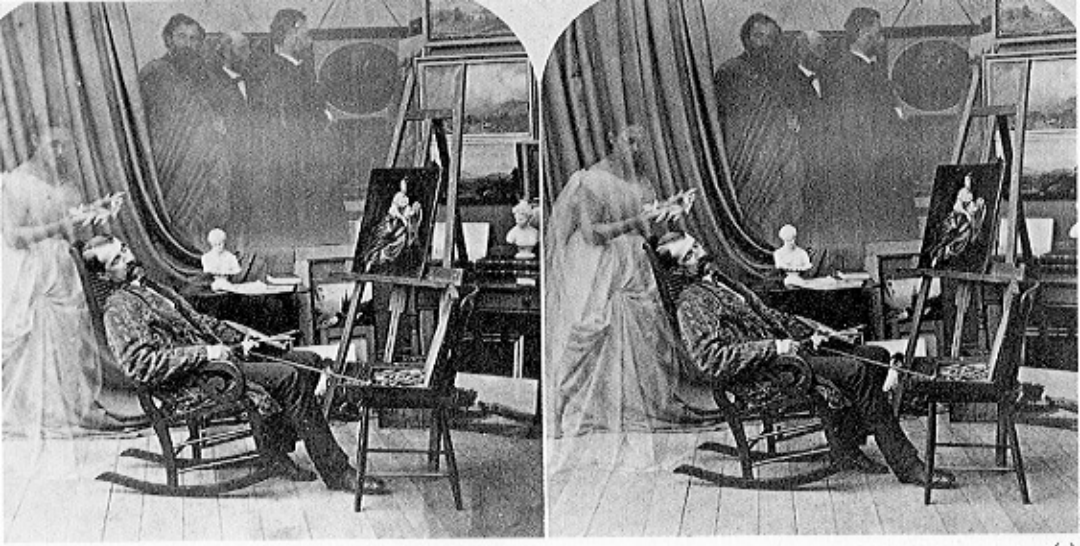

STEREO GEMS OF STATUARY
AFTER EMINENT EUROPEAN SCULPTORS



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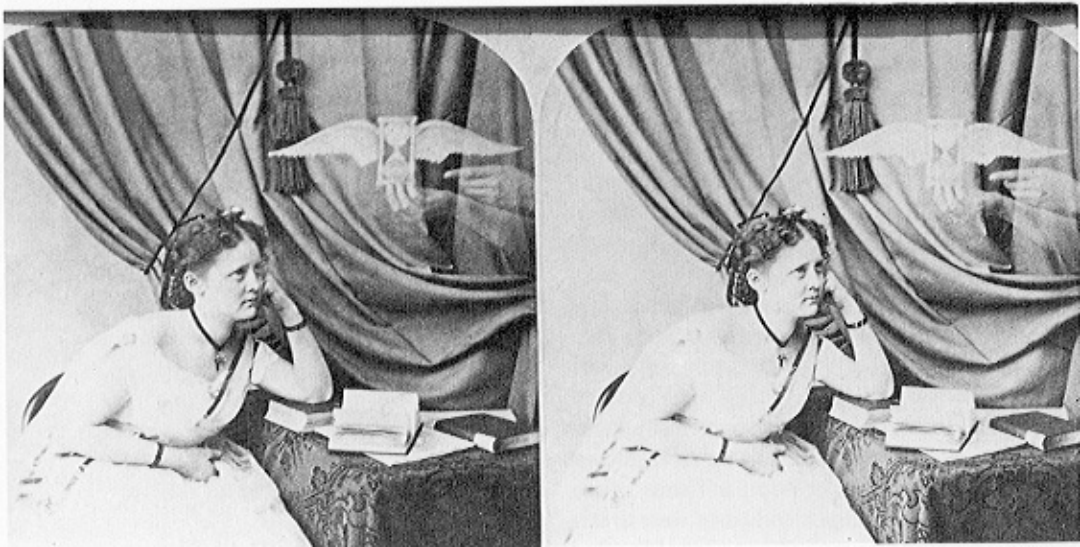
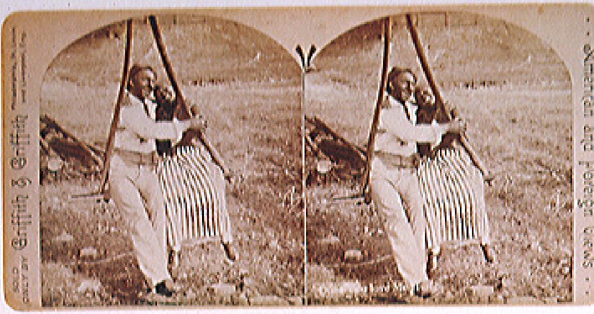
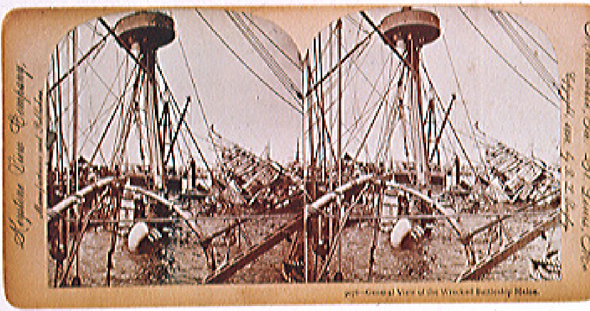
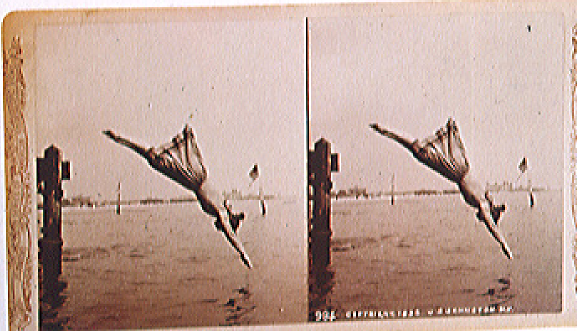






General View of the Wrecked Battleship Maine.



STÉRÉOSCOPES

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to produce them in sufficient quantity to meet the demand. The handicraft methods of the early producers, described by Darrah, would not do:

Five steps were involved in the manufacture of a card stereograph:

1. making positive prints from the negative, including washing and drying them (usually overnight);

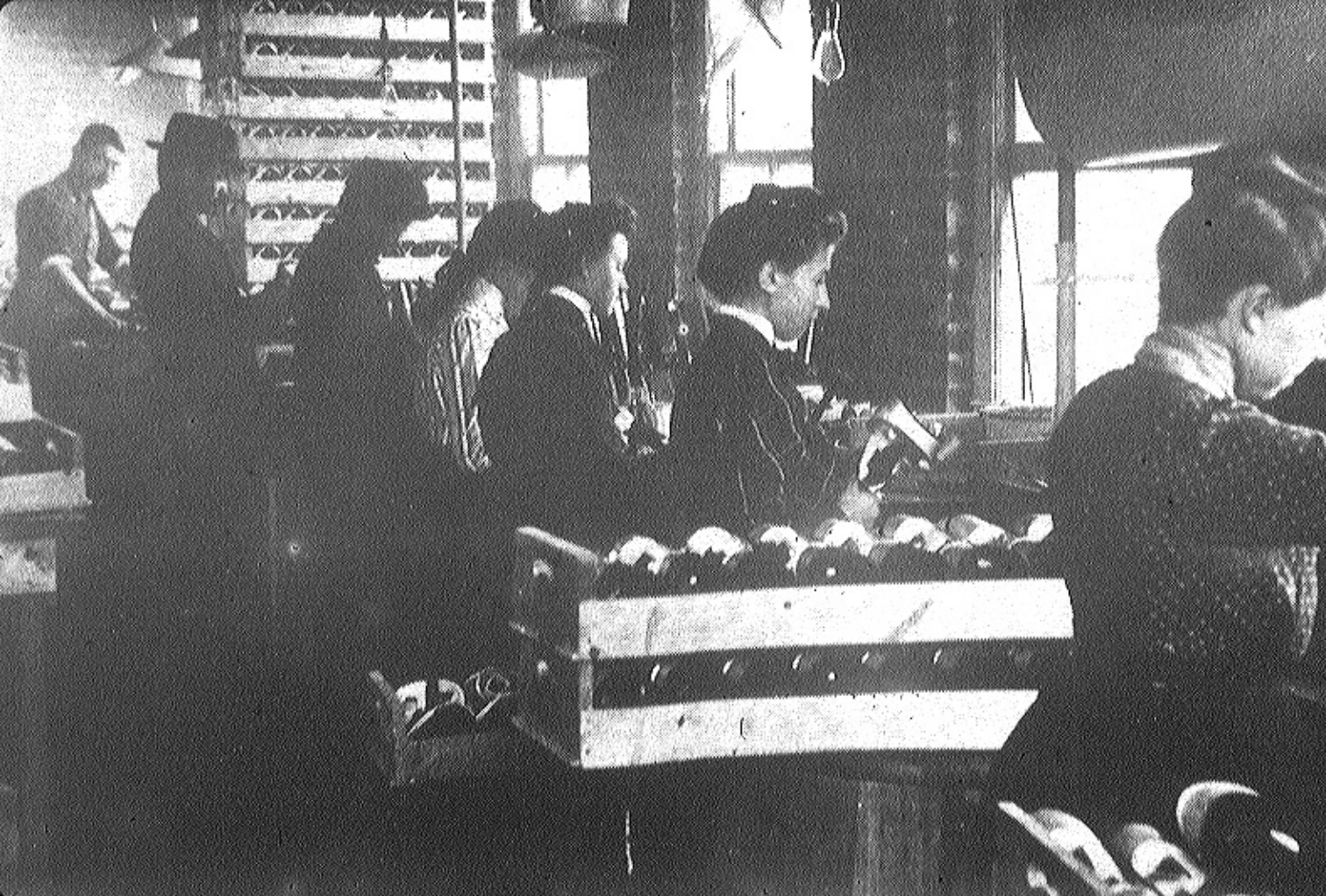
2. trimming the prints with a scissors or die;

3. pasting prints on the card;

4. drying under gentle pressure;

5. applying labels and imprints.

The entire operation extended over three days and two nights, although some large establishments were able to speed the process by using drying ovens or warming tables. A single skilled workman could produce 50 to 60 card mounts a day, or up to 350 per week. If the process was carried out, with a division of labor, five operators could produce more than 3,000 per week.[2]



STEREOSCOPIC VIEW DEPARTMENT

SEEN THROUGH THE STEREOSCOPE, a stereoscopic view brings the original scene directly before us in a way that seems almost like magic, so wonderful is the effect of distance, depth, relief and solidity. The marvelously true to life appearance, everything seemingly of full natural life size, the wonderful detail, the perspective, the figures springing up in the foreground as distinct and real as if alive, make the stereoscopic view a most delightful entertainment.

SEEN FOR THE FIRST TIME, the effect is almost startling, and if you have never looked through the scope at one of these wonderful pictures you have still before you one of the real pleasures of life.

HOW STEREOSCOPIC PICTURES ARE MADE. At first thought a stereoscopic view seems to be simply a double photograph, two photographs mounted side by side on one card. Apparently the two photographs are just alike, but in reality there is a wonderful difference in these two pictures, these two photographs that form the stereoscopic view, and the whole secret of the superiority of a stereoscopic picture over any other form of photograph lies in this fact—that the two pictures are not exactly alike.

STEREOSCOPIC VIEWS ARE MADE WITH A DOUBLE CAMERA, a special camera fitted with two lenses, which makes two simultaneous pictures of the same subject side by side on the same plate, these two pictures differing from each other, because the two lenses are about three inches apart, and therefore the picture which one lens makes is from a slightly different view point than the picture made by the other lens. One lens sees, or takes a little more of the right hand side of the subject, the other lens a little more of the left hand side. When these two pictures are combined by the prismatic lenses of the stereoscope we get that wonderful stereoscopic effect, that effect of reality, of distance, of perspective and of relief which has puzzled the scientists and excited the admiration of everyone since the day of the discovery of the stereoscope by Prof. Wheatstone and Sir David Brewster away back in the first half of the 19th century.

THE STEREOSCOPE IS AN OPTICAL INSTRUMENT for viewing stereoscopic pictures. It is provided with two powerful prismatic magnifying lenses. When the stereoscopic view is looked at through the stereoscope the prismatic lenses of the instrument combine the two pictures into one and at the same time cause a wonderful transformation in the appearance of the view. The two ordinary looking photographs, the two pictures apparently just alike, become, when seen through the stereoscope, a single picture, life size, with everything standing out in relief, just exactly as though you were looking at the objects itself instead of a picture.

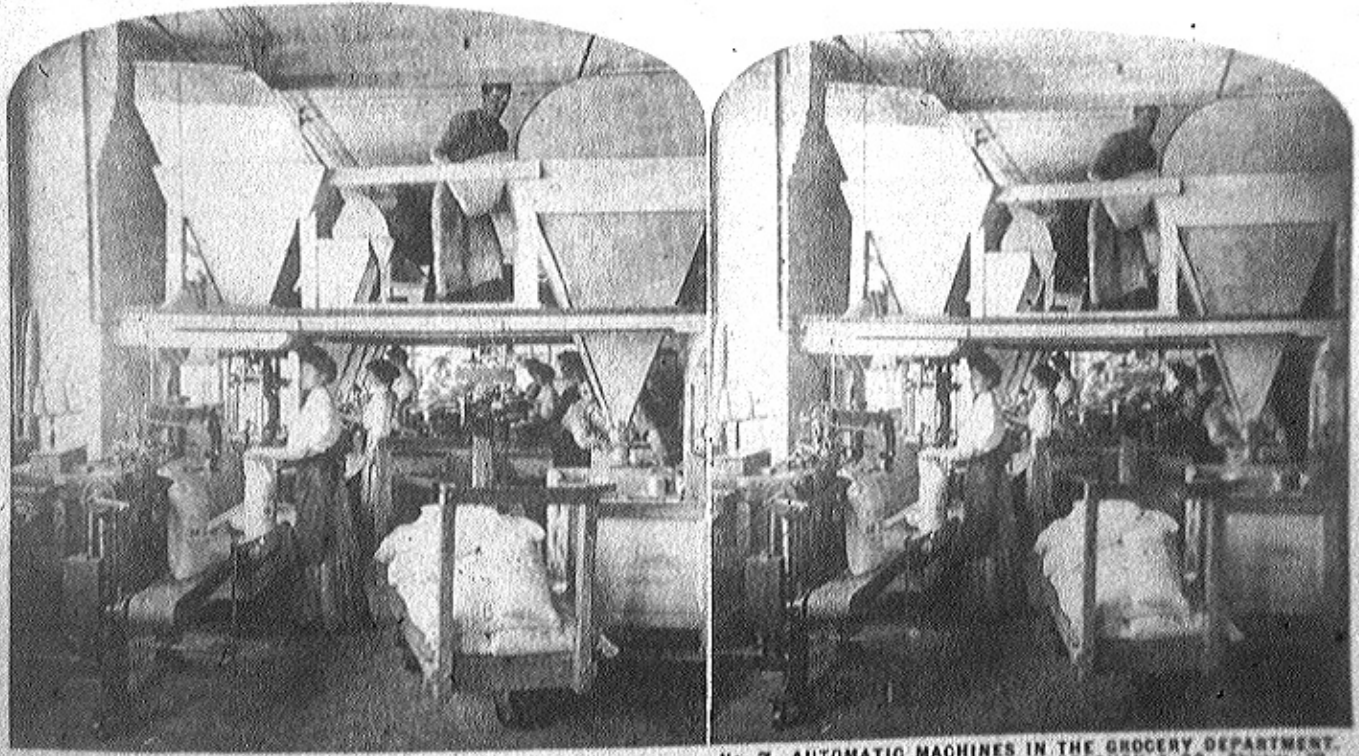
THE EDUCATIONAL VALUE OF OUR STEREOSCOPIC VIEWS

THIS DESCRIPTIVE FEATURE DOUBLES THE VALUE OF OU VIEWS. Views sold by other dealers, without descriptive matter of a kind, or simply with the name of the view printed at the botto may be interesting for a time. The pictures may be beautiful, may prove source of amusement, but to be of real val to be of lasting interest, every stereoscopic vi should be accompanied by a complete, accur and carefully written description.

LET US SELECT AT RANDOM one the p tures from our big set of 100 views of t World, say, for example, No. 287, which entitled, "Interior of the Coliseum, Rom Italy." Seen through the stereoscope this i beautiful picture. As we look at it we se to be actually in Rome, looking at this m famous of ancient Roman buildings, but matter how perfect this picture may be, matter how natural in appearance it is, matter how true an idea it gives us of the ex appearance of the Coliseum, our interest is v greatly increased and the picture assumes a n and greater value when we turn it over a read on the back that the Coliseum is the l gest and most magnificent stone amphithea ever built, that its erection was commenced Vespasian, A. D. 72, that it was opened d ing the reign of Titus, but not comple until the time of Domitian, that 12,000 capt Jews were the workmen and that the Christ martyr Gaudentius was the architect; that this wond ful amphitheater was used for gladiatorial combats fights of slaves and Christians with wild beasts; t St. Ignatius was the first martyr that was devoured by lions, and that a cross in the ar now marks the spot where the early Christ suffered. We read that outwardly the build shows four stories, supported respectively by Do Ionic and Corinthian columns, on which the arches of each story rested. We learn that elliptic, massive walls carried spaces for the spectators in the interior, and we learn of marvelous ingenuity in the arrangement of the passages through which the multitudes reac the 87,000 seats; we learn how the name Coliseum is derived from the Italian word Colos that it was first used in the eighth century, and probably derived from the colossal state Apollo-Nero, located near by.

WITH THIS FUND OF INFORMATION BEFORE US, the pictu takes on interest, and when you remember that each and every one of the 1,260 views, constituting great Educational Series, comes with full and complete descriptive matter, some idea of genuine and lasting value of this series of views may be gained.

ABOUT POSTAGE, EXPRESS OR FREIGHT on stereoscopic views. sent by mail, the postage one set of 100 views and stereoscope is 35 cents, or on the views alone, 20 cents.



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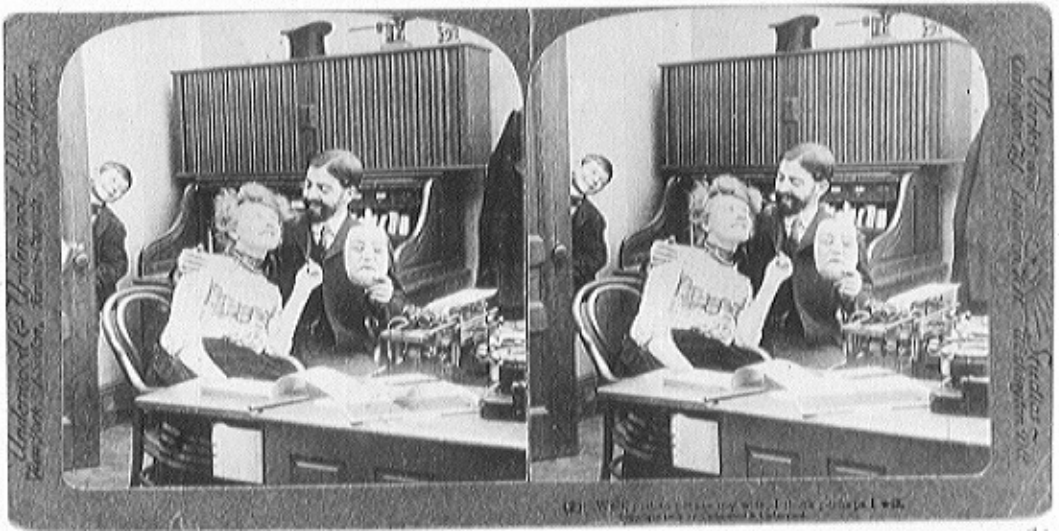
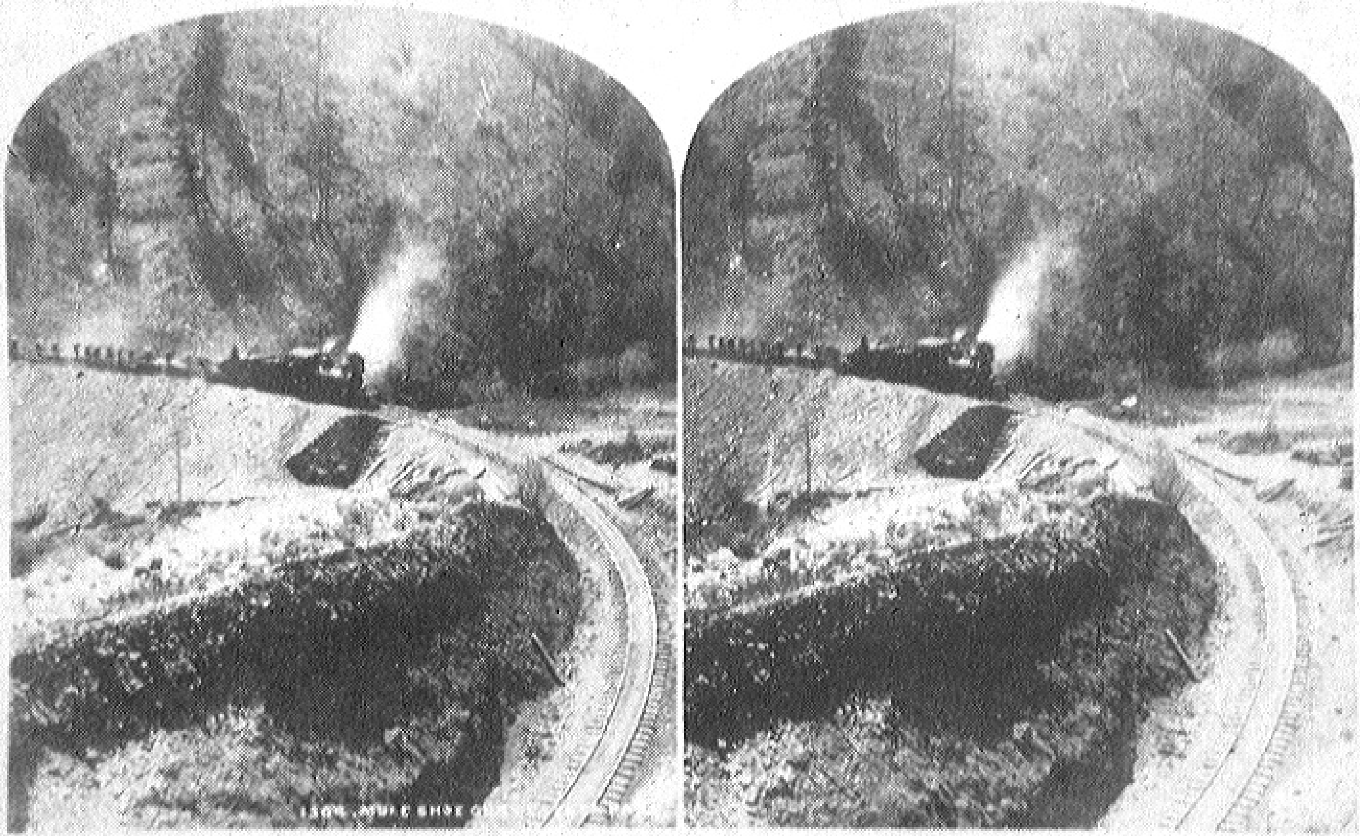


No. 12.—Porte St. Martin, à Paris.

156. Warren Thompson. Self-portrait as hunter. ca. 1853.
3⅛ × 6¾ in. ([illegible])

157. Detail of fig. 156.



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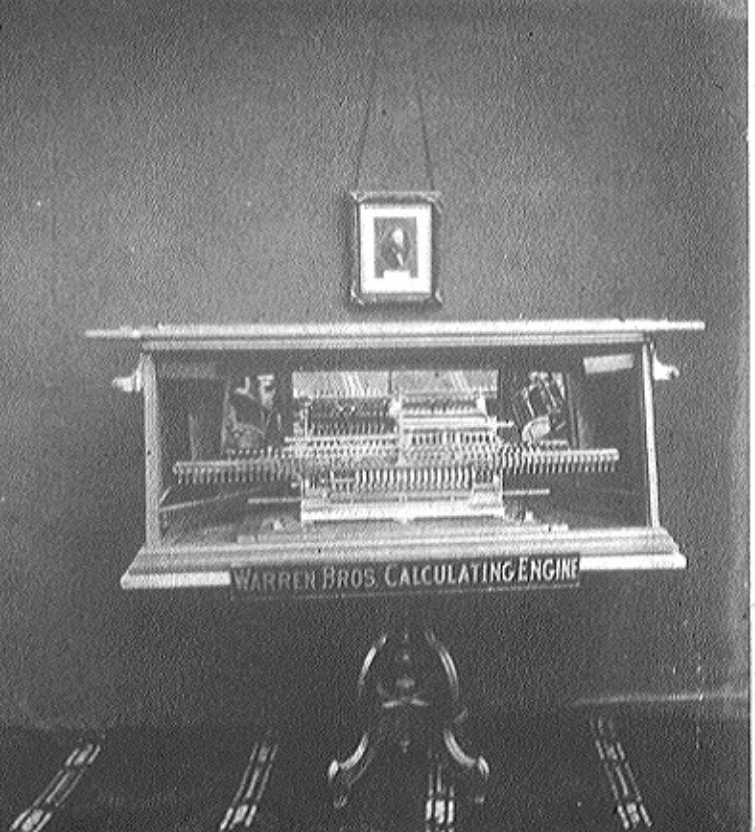
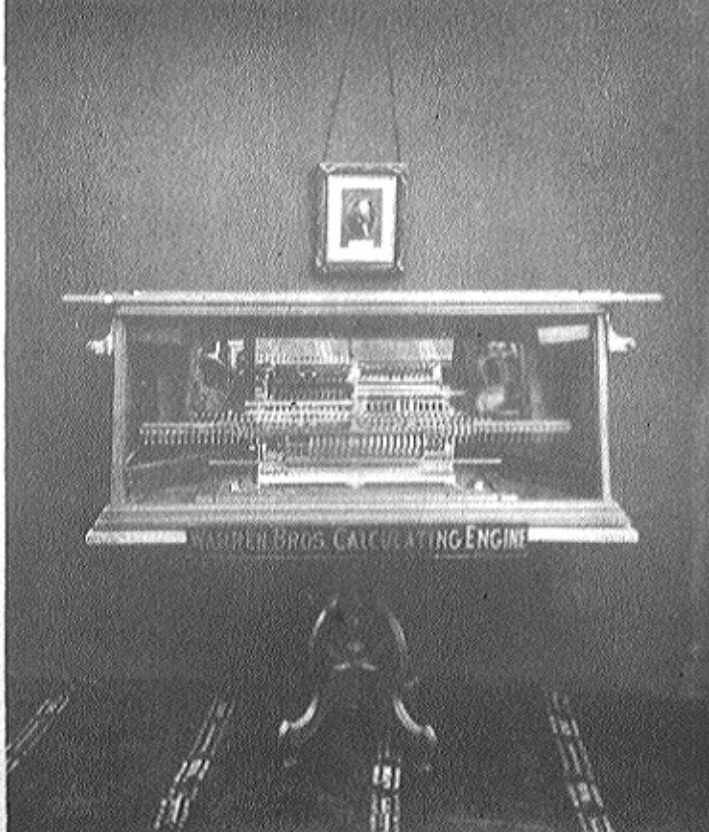

WARREN BROS. CALCULATING ENGINE


WARREN BROS. CALCULATING ENGINE

Soldier with Gas Mask

ERNEST ENJALBERT, ENGINEER AND BUILDER IN PARIS

At the Exposition Universelle in Paris in 1889, Ernest Enjalbert, who had previously invented the Photo-Revolver, displayed his process for automatic photography, described in Walter E. Woodbury's *Encyclopedic Dictionary of Photography*: "designed to perform all the photographic operations necessary to obtain by the ferrotype process the portrait of an individual who sits in front of it, and who has previously dropped a sufficient number of coins into the cash box." The actual exposure lasted from three to six seconds, and the device delivered a framed ferrotype photograph after five minutes. The resulting photograph was a wet collodion proof on a thin metal plate "covered with a perfectly black glossy lacquer." The first devices were installed in Paris at the Jardin d'Acclimatation. But the pictures that were delivered were often mediocre in quality, the machines frequently broke down, and the price was too high. The Enjalbert process quickly vanished. The magazine *La Nature* recalled in 1895 the failure "of an automatic device that delivered for 50 centimes a tiny plate upon which a portrait could barely be seen, and was often unrecognizable."

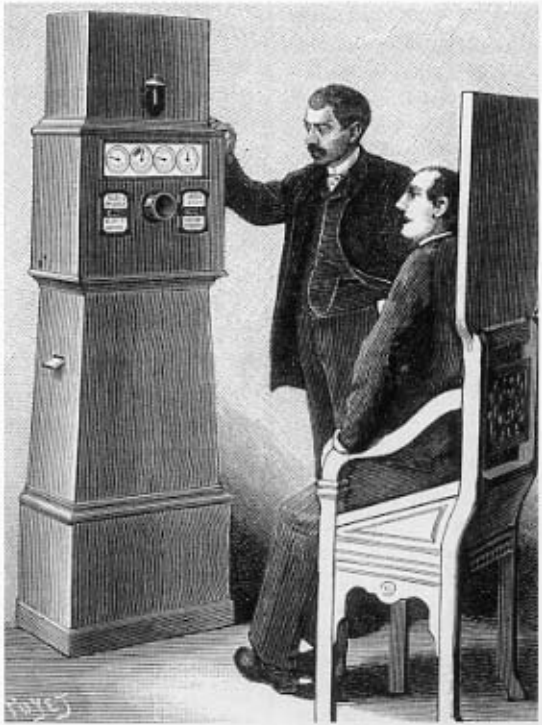
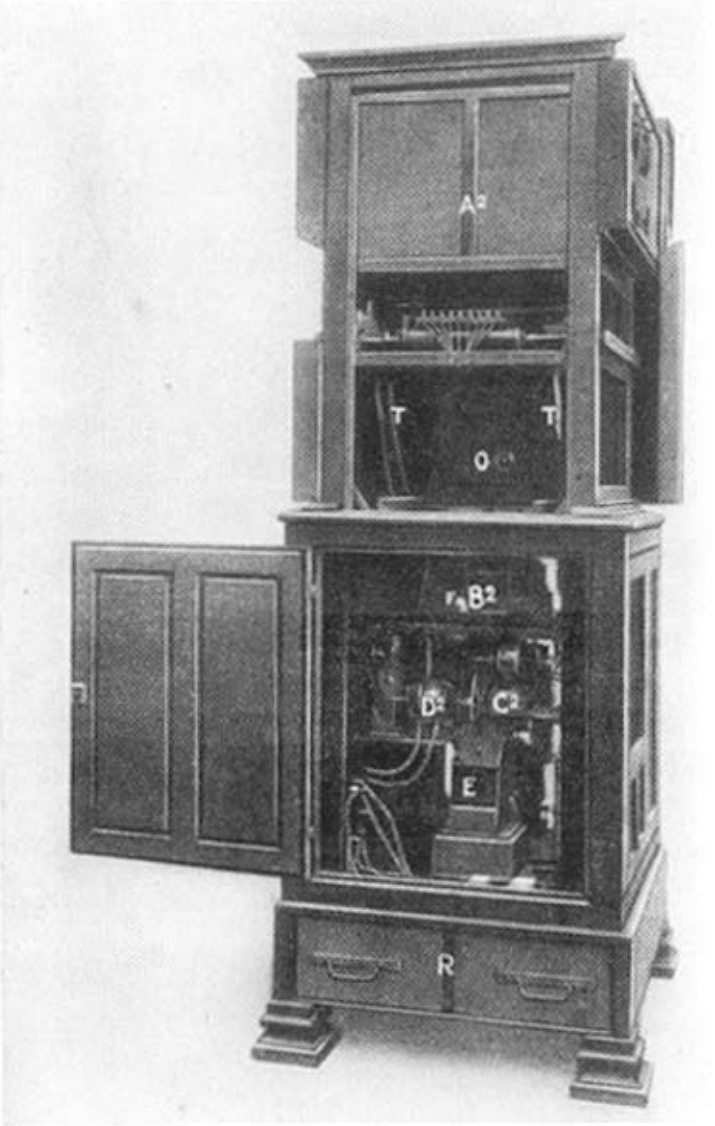


Fig. 1. — Appareil de photographie automatique de M. Enjalbert. (Vue extérieure.)

THE BOSCO, A FUN FAIR DESTINY

During the first international exposition of amateur photography at the Hamburg Kunsthalle in 1893, the German inventor Conrad Bernitt presented his Bosco, which utilized an automatic photographic process that was quite similar to Enjalbert's, but cheaper and easier to use. The Bosco Automat, which delivered a ferrotype photograph in three minutes, enjoyed enormous success at fairs, amusement parks, and *cafés-concerts* at the turn of the twentieth century.


A²
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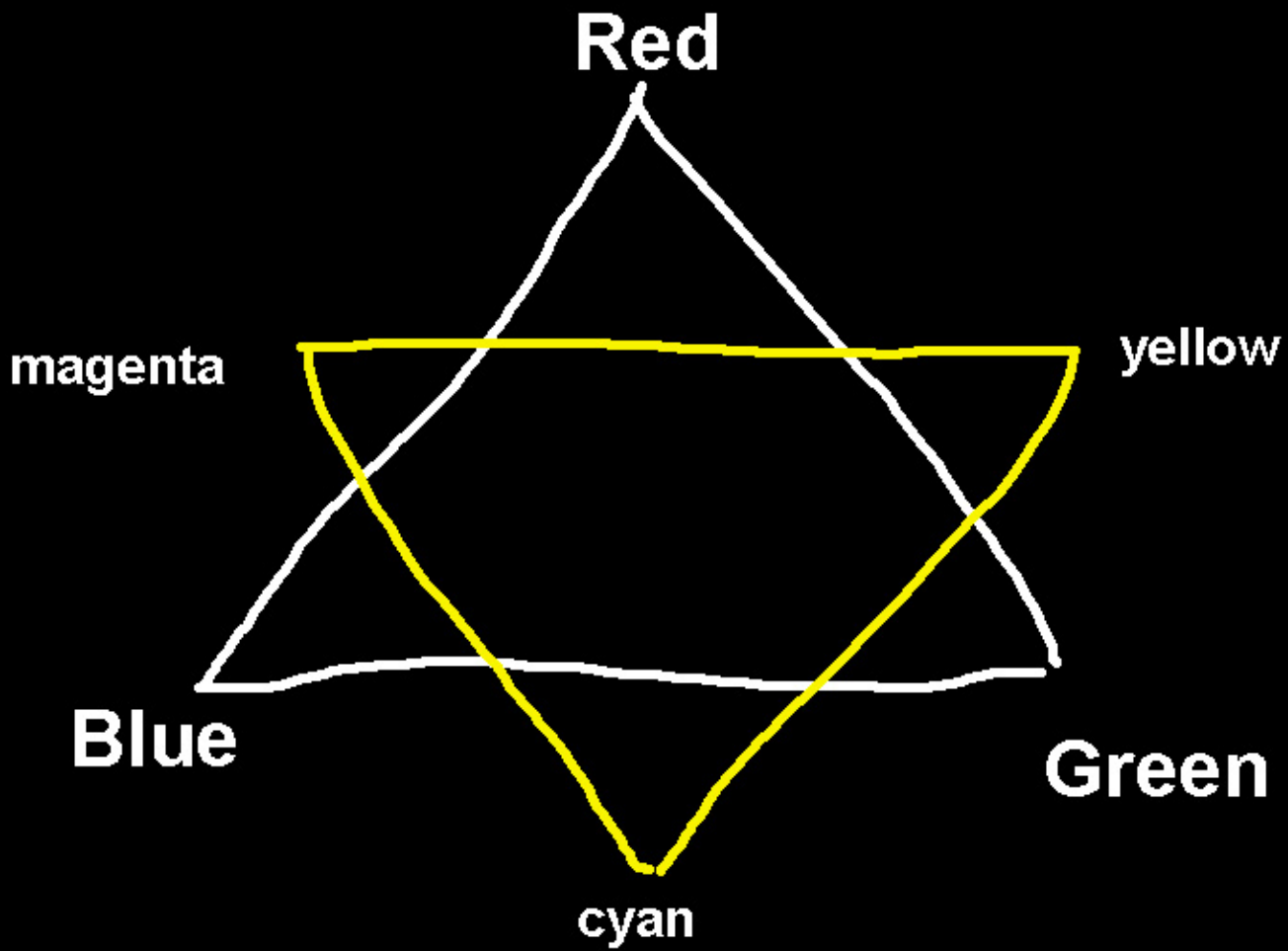
Photomatic booth from the International Mutoscope Reel Company of New York.

Early Color Photography

1802 -- Thomas Young advances the ideas that colors are sensations and not properties of the objects and that they could be created by the additive color synthesis based on the knowledge of the prismatic breaking up of white light into the spectrum.

1861 -- James Clerk Maxwell demonstrates the additive color process using black and white slides host through primary color filters and reconstituted in projection through the same filters.

1862 -- Louis Ducos Du Hauron patents a camera with an internal beam splitter to divide the image from a single lens into the three color separations, so only one exposure is necessary to shoot a color image.


Red
magenta
yellow
Blue
Green
cyan

Early Color Photography con't

1868 -- Ducos Du Hauron published *Les Couleurs en photographie* setting forth theoretical basis for all subsequent additive and subtractive color processes, including the integral mosaic process (Autochrome).

1904 -- the Lumiere Bros. obtain the patent for this Autochrome process and introduced it commercially in 1907.

The autochrome is a direct positive glass lantern slide; it used fine potato starch grains dyed red, green, blue and randomly distributed over the base of a glass black and white neg. It was exposed and then reprojected through those colored grains of starch, producing a pointilliste effect in full color.


HOTEL-RESTAU

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ÉTABLISSEMENTS

LUMIÈRE & JOUGLA

RÉUNIS

Société Anonyme au Capital de 6.722.000 fr — SIÈGE SOCIAL

USINES DE LYON

PLAQUES

Autochromes Lumière

Brevetés et Noms Déposés en France et à l'Étranger

Permettant l'obtention directe de la Photographie des objets **AVEC LEURS COULEURS**

EMPLOYER AVANT

... 192.

N° de Fabrication

4855

50-53

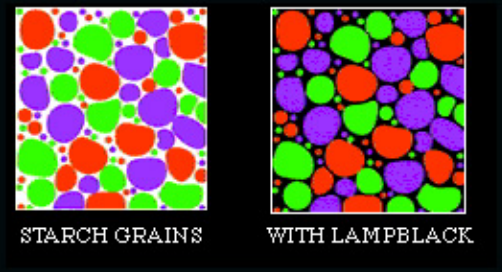
BOITE DE 4 PLAQUES

Format

9-12

N'ouvrir cette boîte qu'au laboratoire éclairé par une lumière rouge très faible et mieux par une lanterne munie de papiers Virida

Autochrome Grain-Filters

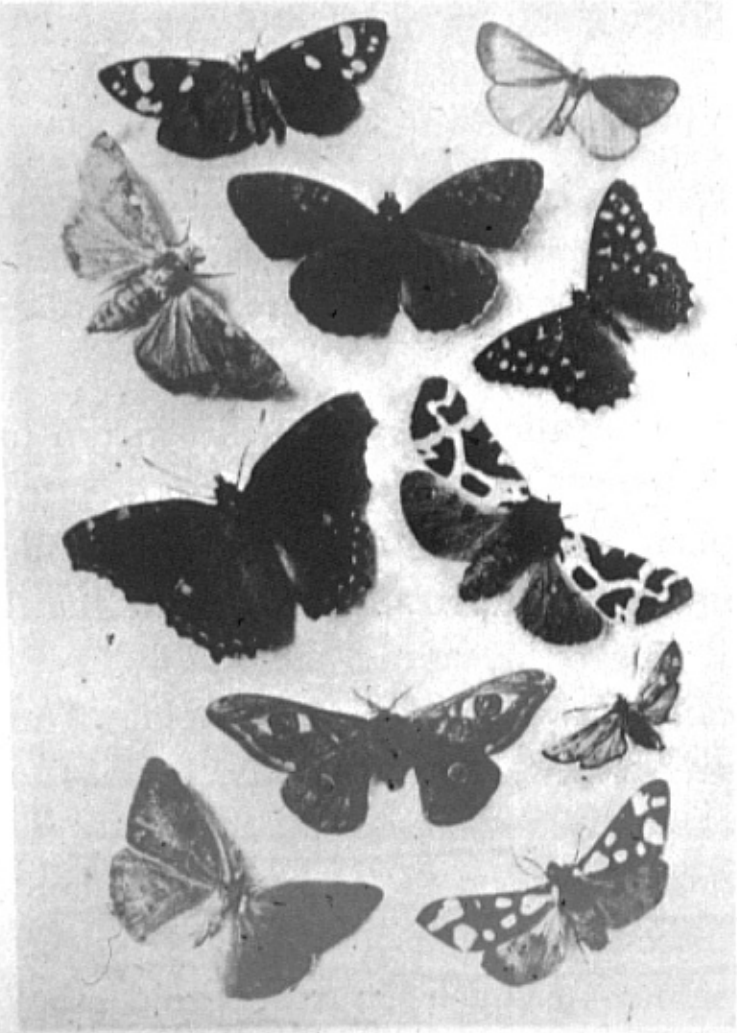


Glass slide coated with varnish, then thin layer of mixed colored starch grains was added. Then further coat of varnish; then slide was coated with a layer of ortho-chromatic gelatin bromide emulsion (later, panchromatic). Plate exposed through the starch grains, and processed via reversal method (developed, washed, bleached, re-exposed to light, re-developed, washed, and fixed.

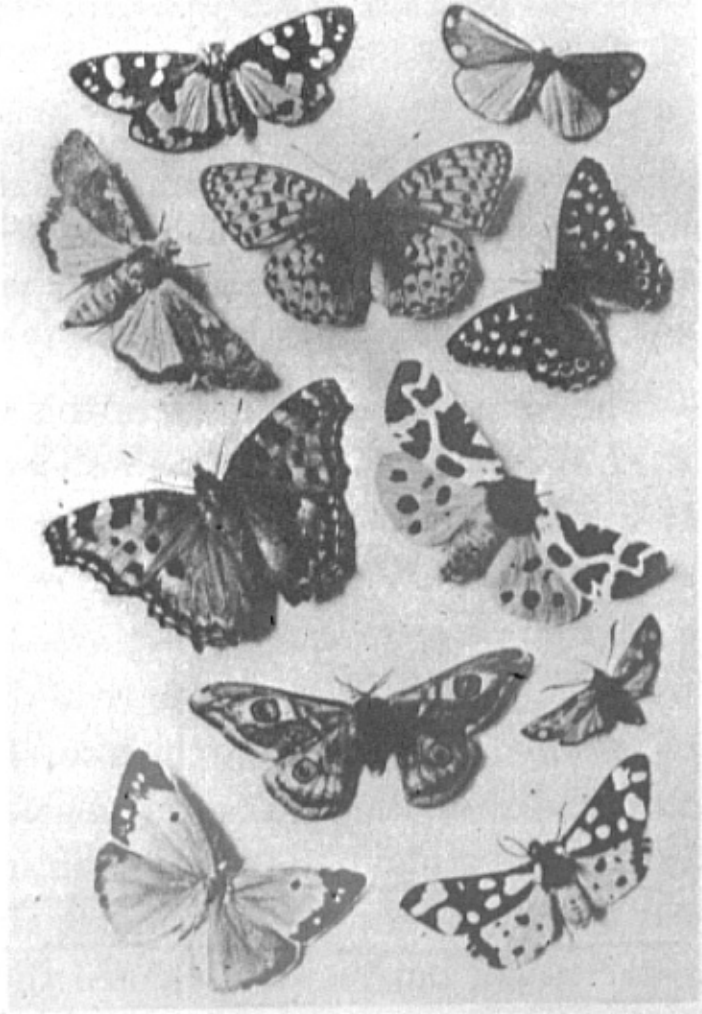
Ordinary plates: All nineteenth-century plates were only sensitive to blue light and could be safely handled and processed in yellow illumination. Because these emulsions had dominated photography until the early years of this century, they were termed *ordinary.*

Orthochromatic: Photographic emulsions sensitive to all colors except red, producing tonal values of light and shade in a photograph that correspond to the tones in nature. (1873)

Panchromatic: Photographic emulsions sensitive to all colors of the visible spectrum. The first truly panchromatic emulsion was marketed by Wratten and Wainwright Ltd., London, in 1906.



22. Photograph taken on ordinary plate, insensitive to most colours



23. The same subject taken on panchromatic plate