Writing about stereographs in an article published in *The Atlantic Monthly* in June 1859, American physician and poet Oliver Wendell Holmes (AB 1829) described the art of photography, then just twenty years old, as “the mirror with a memory.” Two years later, on the eve of the American Civil War, Holmes invented a handheld stereoscope for easier viewing of increasingly popular stereographs.

Stereographs, photographic images mounted side by side, were just one format through which the public experienced unprecedented photographic documentation of the war. Photography’s popularity meant that soldiers were able to carry images of loved ones with them into battle and to send their own photographs home. These visual representations became especially important when a soldier died, providing a touchstone for remembrance of the individual and his service.

More than 150 years after the beginning of the Civil War, such photographs provide us in turn with a more immediate experience of the time period. Together with textual documentation including letters and diaries, photographs broaden and inform our memory of the Civil War, adding a visual dimension to the names inscribed in history. The following timeline places the photographic processes on display in the exhibition within the context of the Civil War and the developments in the field of photography.
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1790</td>
<td>Thomas Wedgewood makes photograms by placing objects on leather sensitized with silver nitrate and exposing them to light.</td>
</tr>
<tr>
<td>1822</td>
<td>Nicéphore Niépce creates the first fixed, permanent photographic image.</td>
</tr>
<tr>
<td>1839</td>
<td>John Herschel demonstrates hyposulfite of soda as a fixer, and makes the first glass negative.</td>
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</table>
Daguerreotypes

The daguerreotype process creates a direct-positive photographic image on a silver-coated metal plate. The smooth surface of the plate combined with the ‘first generation’ nature of the picture results in a high-resolution image with great detail. As no intermediary negative is used to create the image, each daguerreotype is unique. Daguerreotypes are typically matted with glass to protect the fragile surface of the metal plate, and housed in velvet-lined cases.

The "first fully successful and practicable photographic process," daguerreotypes were the invention of Louis-Jacques-Mandé Daguerre (1787-1851), who publicized his discovery in 1839. The long exposure time required to produce the images limited their use primarily to studio portraiture and made them more costly than other photographic processes, but their veracity and detail undoubtedly contributed to their popularity from the early 1840s through 1860.
Salted Paper Prints

Salted paper print is a general term used to describe positive prints on uncoated plain paper. The earliest photographic prints made on paper, salt prints could be made from either glass or paper negatives. Created by soaking paper in a salt solution, then in silver nitrate to make the paper light-sensitive, salt prints are identifiable by having the images "embedded in the fibers of the paper, instead of being suspended on the surface" (George Eastman House). Prints were occasionally coated or varnished with substances such as gum arabic in an effort to reduce fading and preserve the image. Salted paper prints were the predominant procedure for creating positive paper prints from 1840 through approximately 1860.

The cyanotype, or blueprint, process is introduced by John Herschel.
1850 Albumen Prints

Albumen prints are created on paper coated with albumen (egg white), on top of which a light-sensitive photographic emulsion is layered. The resulting prints are characterized by a "sepia color and slightly glossy surface" (The American Museum of Photography). Made on very thin paper, the prints were usually mounted to prevent tearing or curling.

Introduced in France by Louis Désiré Blanquart-Evrard (1802-1872) on May 27, 1850, albumen prints eclipsed salt prints in popularity during the mid-1850s to become “the dominant printing process of the nineteenth century” (Ritzenthaler 38).
1850 Crystalotypes

In June 1850 Boston daguerreotypist John Adams Whipple (1822-1891) patented a method to create negatives by coating glass plates with albumen. He used the term ‘crystalotype’ to refer both to the glass plate negatives and the salted paper positive prints made from them. Whipple often embossed the paper mounts for these prints with a “Crystalotype” insignia. The process allowed Whipple to make multiple paper copies of his daguerreotypes.

1850 Fugitive Slave Act
1851 Collodion Wet Plate Negatives

The collodion wet plate process, developed by British sculptor Frederick Scott Archer (1813-1857) in 1851, produced a negative image on a glass support. They are “distinguishable by the often rough edges of the hand-cut glass plate and by flow lines near the edges and in the corners, where the photographer ... often left thumbprints.” The term ‘wet plate’ refers to the requirement that each plate be “coated, sensitized, exposed, and developed” while remaining wet (Ritzenhaler 36-7). The process was used to create direct positive images on glass (ambrotypes) and metal (tintypes), as well as photographic prints on paper (albumen prints).

Introduced in the United States around 1855 and “extensively used by 1860 and into the 1880s,” wet plate negatives led to the explosion of photographic images in everyday life and culture (Ritzenhaler 36). The combination of albumen prints and wet collodion negatives, which remained in use until the gelatin-dry plate was introduced in 1880, joined the “deep, rich tones and crisp detail” found in daguerreotypes with the ability to make multiple prints of the same image (Reilly 5).
Ambrotypes

Similar to daguerreotypes, the process creates a unique direct positive image on a glass support; ambrotypes were also frequently housed in cases to protect their fragile supports. Created from wet plate collodion negatives, ambrotypes use the resulting glass plate as a positive rather than image: the back of the deliberately underexposed plate is painted black, or backed with black paper or cloth, making the image appear as a positive photograph.

Patented in 1854 by American photographer James Ambrose Cutting (1814-1867), ambrotypes were most popular in the mid-1850s but were produced into the early 1880s. Cheaper to produce than daguerreotypes and requiring a shorter exposure time, ambrotypes’ non-reflective surface also made them easier to view than daguerreotypes.
1856 Tintypes

Another variant of the wet collodion process, the tintype process creates a unique direct positive image on a thin sheet of iron lacquered black. Because tintypes were more durable than daguerreotypes and ambrotypes, they could be stored in paper framers or folders rather than cases.

Patented in the United States by American scientist Hamilton Smith (1819-1903) in 1856 and first described by French scientist Adolphe-Alexandre Martin (1824-1896) three years previously, the tintype process enjoyed particular popularity during the Civil War but endured well into the 20th century. Inexpensive to produce, tintypes were especially "attractive to Civil War soldiers ... [who] posed for the photographers set up at the military camps and sent the tintypes home" (Ritzenhailer 36).
1859 **Cartes-de-Visite**

"The most popular format for portrait photography in the nineteenth century," cartes-de-visite were created by mounting albumen prints on card stock measuring 4 x 2 ½ inches, the size of the visiting cards from which the format derives its name (George Eastman House).

Introduced to the United States in 1859, cartes-de-visite were hugely popular in the 1860s, when they were exchanged and collected in specially-designed albums. "The American Civil War gave the format enormous momentum as soldiers and their families posed for cartes before they were separated by war" (www.photographymuseum.com). While most cartes-de-visite were used for portraiture, the format was also used to display landscapes, views, and groups. Cartes-de-visite were supplanted in the 1870s by cabinet cards, a similar but larger format.

1859 **Panoramic camera with a wide-angle lens invented by Thomas Sutton**

1859 **October, John Brown’s raid on the Harpers Ferry Arsenal**

1860 **December 24, South Carolina adopts the "Declaration of the Immediate Causes Which Induce and Justify the Secession of South Carolina from the Federal Union"**
1861

Stereographs

Stereographs consist of two photographic images mounted side by side. The images record the same view, spaced 2 1/2 inches apart. When viewed through a stereoscope, the images coalesce into a single three-dimensional image, a viewing method intended to replicate human binocular vision. While photographers could produce stereographs from a number of different photographic processes, including daguerreotypes, paper prints were especially suitable for viewing and mounting. American physician and poet Oliver Wendell Holmes (1809-1894), a member of the Harvard College Class of 1829, invented a handheld stereoscope in 1861, an indication of the intense popularity stereographs enjoyed from 1850 to the turn of the century.

February, the Confederacy is formed

October 21, Battle of Ball’s Bluff, Loudoun County Virginia

1862

September, Battles of Harpers Ferry and Antietam
The “Harvard” Regiment

The 20th Massachusetts Volunteer Infantry, led by Colonel W. Raymond Lee, was familiarly known as the “Harvard” regiment because so many of its officers and enlisted men had attended Harvard. In the carte-de-visite pictured at left, Lieutenant Colonel William Francis Bartlett (AB 1862), Colonel Francis Winthrop Palfrey (AB 1851), Dr. Nathan Hayward (AB 1850, MD 1855), Quartermaster Charles W. Folsom (AB 1845) and Adjutant William Frederic Milton (AB 1858) are shown standing before the log cabin serving as regimental headquarters at Camp Benton, Maryland.

This photograph—a salted paper print—was taken shortly after the regiment’s participation in the battle of Ball’s Bluff on October 21, 1861, in Loudon County, Virginia. Eighty-eight officers and men were killed or wounded during the battle; Oliver Wendell Holmes Jr. was among the latter category. One hundred and thirteen officers and men, including Colonel W. Raymond Lee and Major Paul Joseph Revere (AB 1852), were taken prisoner. Revere, grandson of Paul Revere, died on July 5, 1863, of wounds received at Gettysburg. Second lieutenant Sumner Paine (Harvard College Class of 1865) died at Gettysburg two days earlier on July 3, 1863; he was the youngest Harvard student to die during the war.

January 1, President Lincoln issues the Emancipation Proclamation

July, the Battle of Gettysburg

November 19, President Lincoln delivers Gettysburg Address

Abraham Lincoln is re-elected as President

November, William T. Sherman’s March to the Sea
1869 Heliotypes

In December 1869 Ernest Edwards (1837-1903) patents the heliotype, a photomechanical process for reproducing photographs involving the transfer of an image from a photographic negative to a gelatin-coated plate, from which the prints are made.

1865

January, Congress passes the Thirteenth Amendment

April 9, Battle of Appomattox Court House and Robert E. Lee’s surrender of the Army of Northern Virginia to Ulysses S. Grant

April 14, President Abraham Lincoln is assassinated. Andrew Johnson takes office as President

May 9, President Johnson declares an end to the insurrection
1873 Platinotypes

The platinum print, or platinotype, is introduced by Englishman William Willis; by 1880 it is in wide use and continues to be used into the 1930s. Platinum prints are distinctive for their delicate tonal range, matte surface (the paper is uncoated), and their permanence.

1871 Richard Maddox invents the gelatin emulsion

1870 October 6, the cornerstone is laid for Memorial Hall, designed by architects William Robert Ware (AB 1852) and Henry Van Brunt (AB 1854)

1878 Harvard president Charles W. Eliot (AB 1853) accepts Memorial Hall on behalf of the University from the Memorial Hall building committee.
<table>
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<tr>
<td>1887</td>
<td>Celluloid film base introduced</td>
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<tr>
<td>1888</td>
<td>Kodak widely advertises the first easy-to-use camera</td>
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<tr>
<td>1909</td>
<td>Safety film developed</td>
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<tr>
<td>1913</td>
<td>First 35mm still camera developed</td>
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<tr>
<td>1923</td>
<td>“Doc” Harold Edgerton invents the xenon flash lamp and strobe photography</td>
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<tr>
<td>1948</td>
<td>Polaroid camera marketed</td>
</tr>
<tr>
<td>2010</td>
<td>Apple Inc. introduces the iPhone 4, with a 5 megapixel digital camera and a 960x640 pixel image display screen</td>
</tr>
<tr>
<td>1984</td>
<td>Canon demonstrates first digital still camera</td>
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References & Selected Bibliography


