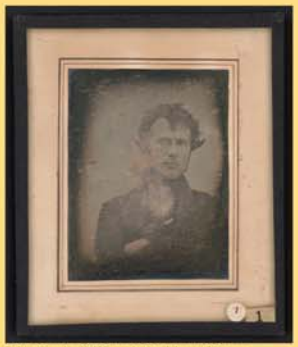
19TH CENTURY GLASS MANUFACTURE & PHOTOGRAPHIC TECHNOLOGY

From 1839 on, the manufacture of glass became an integral and intertwined component of photographic technology. Its use as cover glass served to protect fragile photographic images from external mechanical and chemical forces. And its utilization as a base for photographic emulsions allowed for the invention of lantern slides, ambrotypes, as well as wet and dry plate negatives. By charting the concurrent rise of glass production and photographic innovation, a better assessment of photographic materials can be made regarding the types of glass employed for photographic means and the extent to which this glass is inherently stable.



Robert Cornelius, Self-Portrait, 1839, Library of Congress Daguerreotype Collection

The daguerreotype marks photography's invention, and its fragile surface requires a cover glass to keep it protected. One year earlier, James Timmins Chance invents a way to polish cylinder sheet glass, which he calls Patent Plate, a process that improves the glass' clarity and surface quality.

1839

Mathew B. Brady, Portrait of George Perkins Marsh, circa 1850, Library of Congress Daguerreotype Collection

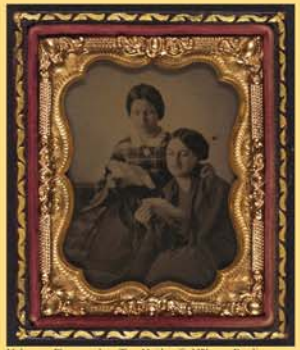
As daguerreotype techniques in America improve, access to imported glass increases, especially after England's repeal of the Glass Excise Tax. Because the image is emphasized, the quality of the cover glass is less often considered, sometimes to the image's detriment.

1845

Unknown Photographer, Unidentified Man, circa 1860. Library of Congress Brady-Handy Collection

Following the Langenheim Brothers' patent of their photographic lantern slides in 1850, Frederick Scott Archer invents the wet collodion process which requires the photographer to self-apply an emulsion on glass plates. To make satisfactory negatives, Archer recommends Patent Plate glass of good quality.

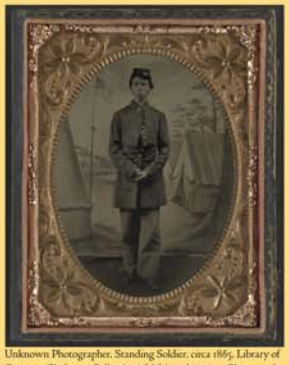
1851



Unknown Photographer, Two Unidentified Women Reading Letters, circa 1865, Library of Congress Liljenquist Family Collection of Civil War Photographs

James Ambrose Cutting patents the ambrotype, a process which continues the use of glass as a photographic base, but as a means for making positive images. Most often the image glass is combined with a protective cover glass. The ambrotype positives are easier to produce than daguerreotypes.

1854



Unknown Photographer, Standing Soldier, circa 1865, Library of Congress Gladstone Collection of African American Photographs

The tintype is patented concurrently in the United States and the UK. As the positive photographic image is on a thin sheet of metal, a cover glass is once again employed as an unobtrusive protective measure. Just prior to the Civil War, cases and cover glasses for tintypes are superseded by cheap and simple cardboard sleeves.

1856

Unknown photographer, Three Women and a Girl in Hats, circa 1890, Library of Congress Detroit Publishing Company Collection

The Liverpool Dry Plate Company introduces viable dry plate negatives which are sold pre-coated on glass plates manufactured with the photographer's needs in mind. Early importation derives from the UK, where natural gas powers glass factory furnaces, allowing for standardization and a higher quality product.

1878

Kate Fogle, 2018 Junior Fellow

Preservation Research & Testing Division

Library of Congress