Article Review- Glass Plate Negatives in the National Archives

Original Article: http://cool.conservation-us.org/jaic/articles/jaic30-01-005.html

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The article Preservation of 19th-Century Negatives in the National Archives by Constance McCabe discusses a preservation project at the National Archives involving thousands of glass plate negatives made by noted 19th-Century photographers. Conservators had to identify the negatives and determine which process they were formed by. Most of the plates were in good condition, but some had been damaged by a variety of causes. The plates were carefully cleaned, duplicated, and packaged for storage. The article goes through the methods used by conservators to treat and identify the plates and notes previous projects that were referenced by the conservators.

First, conservators had to identify what process the images were made by. The plates in this collection were either made by collodion wet plate process or gelatin dry plate. It is important to know the differences because the methods of conservation for each process are different. Collodion wet plates were coated in a light sensitive emulsion by hand, and exposed in a camera while still wet. In order to render an image the plates must be developed before they dry. This means that the photographers (and assistants) had to process the negative immediately after exposing it to an image. (Click Here for a video of the Collodion wet-plate process). Gelatin dry plates were manufactured and sold commercially beginning in the 1880's and were more convenient to use than the wet-plate process, as the photographer did not have to develop the plate immediately after exposing it. Both of these types of negatives look similar and are sometimes incorrectly labeled as one another. One reason for this is that both plates were often varnished to protect the image. The varnish sometimes left a three-dimensional surface with ripples, which can look like the surface characteristics of collodion negatives.

The article discusses ways in which to distinguish wet-plate collodion negatives from dry-plates. One way is color, though this is difficult because color can vary depending on chemical processing. Collodion negatives tend to look black or neutral in hue, but can also look olive green, red, yellow, or brownish. Similarly, gelatin dry-plates can vary based on manufacturing and processing. Therefore color cannot be the only method used to determine the type of negative. The overall appearance of the image and the plate's surface characteristics must be taken into consideration. Close inspection of the edges and corners of the plates is required, irregularities tend to point to the image being coated by hand (wet-plate). Dry-plates tend to look more even because they were coated by machines. Other things to look for are fingerprints on the corners, in the wet-plate process the photographer would have to hold the plate by one corner when coating it and their fingerprint would be embedded into the image layer.

In the upper left of this image, a fingerprint on the corner of a collodion plate can be seen.

Most of the plates were in good condition but some were broken or flaking. Some plates that had broken were repaired with tape. As long as the tape had been not been applied to the emulsion/image side of the plate no further damage would occur from removing the tape. Many of the plates were coated in a varnish, not unlike varnish that is applied to oil paintings. However these plates are generally stored in the dark and were not exposed to much atmosphere, so the varnish was not yellowed or darker looking, like what happens to paintings. Unvarnished plates could scratch easily and some of them had been abraded to the point where the image had started rubbing or flaking away. Some of the flaking occurred on varnished plates, and was likely due to a chemically unstable support glass.

Some of the damage to the plates occurred because the original plates had been used for many years to create prints. Conservators made duplicates of the plates that yield the same (or very similar) tonal range for the purposes of making prints and copies. The plates were cleaned before storage in a way that would not damage the image. The glass side of the plates (non-image side) were cleaned with water. By removing the dirt, a better duplicate could be made. Having a duplicate negative is necessary for making prints so that the original is not damaged.

Negatives in good condition were packaged in good quality paper enclosures and stored vertically on shelving. Negatives that were broken or in otherwise more delicate condition were stored in custom made sink mats of good quality paper and board and stored horizontally. Care was taken to choose the type of shelving and storage facility. Painted cabinets that gave off an odor were sent back. The cabinets were sealed with rubber along the doors to prevent water from entering in case of a leak in the room. Vents were installed in the cabinets to allow air-flow. The storage room itself was fitted temperature and humidity controls.

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