



Article: The Conservation Treatment of William H. Rau's *Pennsylvania Rail Road Scenery*

Author(s): Mary Schobert

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Compiler: Robin E. Siegel

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The Conservation Treatment of William H. Rau's *Pennsylvania Rail Road Scenery*

Mary Schobert

WILLIAM H. RAU, born in 1855 was an energetic and ambitious Philadelphia photographer. He opened his own studio in 1885 and did portraits, commercial work, produced lantern slides, and later learned the autochrome process. He also participated in photographic expeditions in the American West, Egypt, Palestine, Turkey and Italy.

In 1891, he was chosen as the official photographer of the Pennsylvania Railroad. The railroad management was interested in promoting the tourist trade. Rau's charge was to produce exhibition-size photographs of scenery along its lines. His assistant, Charles Darwin remembered that each negative weighed five pounds at the bottom of the hill. At the top, it felt like much more.

The railroad provided Rau with Car #1382 for his work. It was specially fitted with a darkroom, storage room and living room. From June to October Rau exposed between 6 and 24 plates every day. He used glass dry plates, mostly 18 x 22 inches, and was also equipped with a panoramic camera of his own design which used 18 x 47 1/2 inch celluloid film.

Ken Finkel, former Curator of Photographs at the Library Company of Philadelphia where *Pennsylvania Rail Road Scenery* is on deposit writes, "Rau's large lush albumen prints looked old-fashioned in the late 1890's; they addressed the corporate railroad establishment in their preferred visual language. The signals combined and everything assured the upper-middle class that their railroad vacation would be a rich person's vacation. Rau's prints were hung in fashionable halls; champagne was served; musicians played amidst great potted palms."

A complete set of prints was made for the Pennsylvania Railroad's corporate museum in Philadelphia. This is the collection that came to the Conservation Center for Art and Historic Artifacts for treatment in 1993. It consisted of six albums, a total of 654 albumen prints (about 450 images and 200 duplicates). Most prints are 17 1/2 x 21 1/2 inches. A few are 8 x 22.

Conservation Center for Art and Historic Artifacts



William Rau and assistant with his large-format camera c.1891

Prints were mounted on both sides of heavy gray paperboard. Paperboard leaves were attached into the bindings with linen tapes. The collection was not usable by researchers or readily exhibitable in its present form. Many of the leaves had become detached from their bindings: many had been reattached with electrical tape. Paperboard mounts were severely warped and very brittle, with many edge losses. The pH, measured with a flathead electrode meter was 4. The photographs were generally in good condition. Their primary damage was abrasion incurred from the image-to-image arrangement. Besides the abrasion, binder layers were in good condition, with minimal cracking and no flaking. Most prints had slight to moderate fading overall with a band of severe fading at the fore-edge and top or bottom edges. A few had been damaged when prints stuck together. A few had pressure-sensitive tapes on the surface. Surface dirt was generally minor, though a few prints at the beginning of the volume had heavy surface dirt.

It seemed clear that these prints should not remain bound. For some of the six albums, the original structure barely existed anyway since so many leaves were already detached. I considered options for rehousing only or minor treatment, but the problems of the large size of the prints, the brittleness of the mounts, the distortion of the mounts and the difficulty of access because of the double-sided mounting could not be adequately addressed by housing or minimal treatment. I decided that the volumes should be disbound, and each print should be removed from the gray paperboard and remounted.

With two prototype prints I first tried humidification through Gore-tex as a means of releasing a print from its mount, but this approach did not work. Mechanical methods were ruled out because of the severe distortion and the double-sided mounting. Immersion was effective, and in balancing the potential risks of changes in gloss and albumen cracking to significant physical damage, still the safest means available.

After the prototypes were completed the treatments were evaluated by Curator Ken Finkel, Conservation Center Chief Conservator Glen Ruzicka, myself, Eileen Drelick, of American Premier Underwriters, the successor company of the Pennsylvania Railroad, Mat Kane of the Altoona Public Library, and consultant Debbie Hess Norris.

Prototype prints were also examined under 30x magnification. The binder layers did not appear significantly changed and the gloss was not diminished. The prints were flat on their new mounts. The prototypes treatment was deemed successful, and the project began.

Each print was evaluated. Condition reports were prepared using the Symantec Q & A database program.

The before treatment condition was documented with 35mm color slides and 4 x 5 black and white negatives from which 8 x 10 prints were made.

Leaves which were still attached to the binding were cut at the hinges. Prints were surface cleaned with grated or solid Staedtler-Mars Plastic erasers. All prints were lightly rubbed with eraser crumbs. Heavy areas of surface dirt were reduced with solid eraser. We lined batches of 14 photographs a day, usually with a team of two conservators and a technician.

Prints were immersed in deionized water. We discovered that separating prints from mounts was made considerably easier by raising the bath water temperature to about 90F. The Conservation Center does not have a heater for its deionized water. Carrying saucepans of heated deionized water back and forth between the hot plate and the sink was a huge impediment for a project of this size. Advanced Technician Jillian Herrick solved this problem with her ingenious conservation bain marie, in which a large treatment sink is filled with warm tap water, and trays containing deionized water and albumen prints on mounts are floated in it. Large sheets of Plexiglas served as lids. The tepid water temperature could be maintained for quite a while.

After approximately one hour of immersion, each print was faced with polyester film and separated from the mount. Little adhesive residue remained. Each print was lined onto a prepared support of 2 sheets of Mirage board. This material is 100% cotton, unbuffered, and passes the Photographic Activity Test. The two sheets, grain directions parallel, were laminated with wheat starch paste, pressed under weight overnight, and dried for 2 weeks under light restraint prior to lining.

All the prints had pencil notations on the verso with the print number and the word "book." We discovered that in changing the mounts from the original gray to white these notations became visible after lining when they were written on the verso of very light flat tones. I consulted the curator, Ken Finkel. He believed that the marks were probably made by the mounter, and decided that it was acceptable to selectively document them, then remove them where necessary. This was done by application of methyl cellulose with a soft facial brush.

Paste was applied to the photograph verso. The supporting polyester film was cleaned with a squeegee so that excess paste would not be deposited on the mount borders and the print was brushed out onto the double-layer Mirage support. We did a final cleaning with wet cotton balls to remove surface grime and darkened retouching.

After one blotter change, lined prints were pressed overnight between blotters under glass. The next day the drying stack was changed to include corrugated board between each print., with glass and weight on top. The channels in the corrugated allowed for evaporation of moisture from the blotters. Prints were left to dry in this stack for at least two weeks, and no further blotter changes were needed.

At this stage, an unrestrained mounted print would curl upwards. To counter this, an 80 lb. paper was mounted to the Mirage verso with wheat starch paste. Grain direction was parallel to that of the Mirage boards. Prints were dried for another two weeks, again interleaved with blotters and corrugated board.

Mounts were trimmed, leaving a 2 inch border around the photograph. Some volumes originally had print numbers and titles written on the mount below the photograph. New laser-printed labels were made for these prints. Original calligraphy was saved and returned to the owner, along with the album covers.

Image losses were isolated with methyl cellulose and inpainted with watercolor, and in a few instances Derwent colored pencils.

The housing designed for each photograph was a window mat with a wrapper. Unbuffered 4-ply board was used. Mounted prints were held to their backmats with 3 mil polyester film corners attached with 3M #415 tape. The original design included a sheet of unbuffered Renaissance paper tipped to the corners of the inside of the wrapper. While the project was underway, Jim Reilly of the Image Permanence Institute was hired by the owners to provide recommendations on storage and handling. He advised placing a sheet of polyester film over each print to limit exposure to air. This suggestion was adopted into the housing design: the Renaissance paper was eliminated, and a sheet of 3 mil polyester with rounded corners was laid under the window mat.

One of the most significant difficulties encountered with this project was keeping remounted prints acceptably flat. The double Mirage provided a support of sufficient weight for photographs of this size. The addition of

the counter mount produced a flat print and mount. Though the prototype prints remained flat, when we began treating large groups of prints we began having some problems with distortion. This was especially apparent in the winter when, despite the lab's humidification equipment, relative humidity dropped. During these months, a lined and counter mounted print, dried for two weeks between each pasting would begin to show some distortion if left without any restraint for an hour or two. We concluded that an even longer drying time was needed. Unfortunately, it wasn't possible to leave each print under weights for six months. Our solution was to keep the prints under restraint virtually all the time they were in our lab. After prints were cornered into mats, mats were stacked so light pressure was maintained. A recent visit to the Library Company confirmed that distortion of prints is not a problem.

Another complicating factor with this project was keeping track of so many artifacts and coordinating the efforts of all the Conservation Center staff who worked on this. Though records keeping was definitely the least thrilling part of this treatment, it was absolutely necessary to be disciplined about it and to see that everyone else was too. Altogether there are 7 technicians and 5 conservators who have worked on this project. It is only because of their skills and diligence that it continues to be accomplished.

Though William Rau was prolific and successful in his lifetime, his reputation faded quickly after his death in 1920. His career in photography had spanned five decades.

On November 29, 1891, the *Public Ledger* stated that "It is understood that the Pennsylvania Railroad Company intends at an early day to give the public an opportunity to see this remarkable collection of photographic pictures." Now, over a century later, this will soon be true.

I will close with words from Rau himself. In 1918, he wrote an article for the *Photographic Journal of America* offering advice for novice photographers. Rau stressed discipline, saying that a photographer must keep his promises, even if it meant staying up all night to meet a deadline. He closed with more general advice, "Do not overeat," declared Rau, "Do not underbreathe."