



---

Article: Optical Brightener Loss IN Photographic Paper

Author(s): Sandra Connors-Rowe, Paul Whitmore and Hannah Morris

*Topics in Photographic Preservation, Volume 12.*

Pages: 17-17

Compiler: Brenda Bernier

© 2007, Photographic Materials Group of the American Institute for Conservation of Historic & Artistic Works. 1156 15<sup>th</sup> St. NW, Suite 320, Washington, DC 20005. (202) 452-9545, [www.aic-faic.org](http://www.aic-faic.org). Under a licensing agreement, individual authors retain copyright to their work and extend publication rights to the American Institute for Conservation.

*Topics in Photographic Preservation* is published biannually by the Photographic Materials Group (PMG) of the American Institute for Conservation of Historic & Artistic Works (AIC). A membership benefit of the Photographic Materials Group, *Topics in Photographic Preservation* is primarily comprised of papers presented at PMG meetings and is intended to inform and educate conservation-related disciplines.

Papers presented in *Topics in Photographic Preservation, Vol. 12*, have not undergone a formal process of peer review. Responsibility for the methods and materials described herein rests solely with the authors, whose articles should not be considered official statements of the PMG or the AIC. The PMG is an approved division of the AIC but does not necessarily represent the AIC policy or opinions.

---

## OPTICAL BRIGHTENER LOSS IN PHOTOGRAPHIC PAPER

Sandra Connors-Rowe, Paul Whitmore, and Hannah Morris

*Presented at the PMG session of the 2006 AIC Annual Meeting in Providence, Rhode Island*

### Abstract

Optical brightener use in photographic paper production began in the mid-1950s. These brighteners are dyes that produce fluorescent emission in the blue region of the visible spectrum, thereby creating a whiter and brighter paper. Even though optical brighteners are now prevalent in photographic papers, little is known about their sensitivity to light exposure, the appearance of photographic paper after optical brightener loss or the impact these changes will have on the conservation of photographs.

For this reason, forty-three black-and-white photographic print papers, representing nine manufacturers and ranging in date from 1956 to 2004, were studied to evaluate the contribution to appearance and the light sensitivity of their optical brighteners. Colorimetric measurements showed that the brighteners account for as much as one-fifth of the total reflectance in the blue region of the spectrum. Exposure of these samples to simulated daylight during accelerated aging tests showed a decrease in fluorescent emission, thereby reducing the optical brighteners' contribution to overall appearance of the paper. The rate of optical brightener loss was relatively slow, with the majority of samples retaining at least half of their original fluorescent appearance after completion of accelerated aging tests. The implications of optical brightener appearance and sensitivity for treatment and exhibition of brightened photographs will also be discussed.

Sandra Connors-Rowe, Associate Conservation Scientist  
Art Conservation Research Center, Carnegie Mellon University, Pittsburgh PA

Paul Whitmore, Director, Art Conservation Research Center  
Carnegie Mellon University, Pittsburgh PA

Hannah Morris, Deputy Director, Art Conservation Research Center  
Carnegie Mellon University, Pittsburgh, PA

Papers presented in *Topics in Photographic Preservation, Volume Twelve* have not undergone a formal process of peer review.