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# PRINT PERMANENCE RESEARCH AT AARDENBURG IMAGING & ARCHIVES

MARK H. MCCORMICK-GOODHART

*Presented at the 2011 PMG Winter Meeting in Ottawa, Canada*

Aardenburg Imaging & Archives (AaI&A) was founded in 2007 to address the more demanding print permanence expectations of the digital fine art printmaking community. Comprehensive light fade tests and real-world environmental studies are conducted on modern digital print media. AaI&A uses a radically new colorimetric test method in an innovative digital print research program that relies on direct participation by amateur and professional printmakers. Digital print permanence is highly dependent on the printmaker's choices and combinations of material components. The unprecedented "mix and match" nature of these modern choices with respect to printers, inks, papers, and coatings necessitated reaching out directly to the digital printmaking community in order to gather richly representative samples for testing. Another consequence of modern digital photography is that photographic prints have become entirely optional. The general public no longer has as vested an interest in photofinishing as it once did when prints were essential for conveniently viewing and sharing images. In turn, consumer interest in print permanence has also declined in recent years. Concerns about print permanence have been largely relegated to a much smaller segment of the overall photography market which is comprised of the fine art printmaking community, gallery owners, print collectors, museums, and archives. AaI&A's Conservation Display Rating criterion meets the needs of this more discerning community of end-users. Conservation Display Ratings quantify the early stages of print deterioration in which prints continue to exhibit little or no noticeable fade, whereas the consumer oriented fade criteria traditionally used by the photofinishing industry try to quantify easily noticeable and often objectionable fade.

The  $I^*$  (pronounced "i-star") metric, invented by Mark McCormick-Goodhart and published in 2005, plays a significant role in AaI&A's testing program. Unlike conventional color difference equations which cannot track changes in image contrast and that also underestimate the contextual significance of low chroma colors in an image, the  $I^*$  metric successfully evaluates changes in color and tonal accuracy commonly occurring between a reference image and subsequent reproductions of the image. The  $I^*$  metric is used in AaI&A light fastness studies to compare the color and tonal relationships of a light-exposed print sample to those measured in the same print sample prior to light exposure.  $I^*$  *color* rates the retained color accuracy (hue and chroma) while  $I^*$  *tone* rates the retained tonal accuracy (lightness and contrast).

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Aardenburg Imaging & Archives

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