

## Considering the Choices for Aqueous Treatments of Iron-Gall Ink: Treatment Decisions in Light of Current and Past Research and the Case of the *Calligraphic Lord's Prayer* at the Colonial Williamsburg Foundation

### ABSTRACT

In 1997 the *Calligraphic Lord's Prayer* was made a gift to the Abby Aldrich Rockefeller Folk Art Museum at the Colonial Williamsburg Foundation. Dating from 1850, this drawing in iron-gall ink on wove paper was given with the stipulation that the work be exhibited although it was in very poor condition. Treatment goals included washing to deacidify, arrest acid-catalyzed hydrolysis, and remove soluble Fe II ions, thereby stabilizing the work so that it could be lined and losses replaced. The final decision to use calcium phytate and calcium bicarbonate solutions evolved over time, as earlier wet treatment proposals, including solutions containing calcium hydroxide and magnesium bicarbonate, were reconsidered. Phytates have been studied extensively at the Netherlands Institute for Cultural Heritage (Reissland and de Groot 1999; Neevel 2001). Calcium phytate complexes both water-soluble Fe II ions and water-insoluble Fe III ions, with the advantage of preventing iron-catalyzed degradation of cellulose (Neevel 1995).

The decision-making process reflects the scrutiny of current guiding principles regarding wet treatment of works executed in iron-gall ink. Our decision was influenced by dialogue with the Netherlandish researchers and conservators familiar with the working properties of calcium phytate. As we examined the role of reactive Fe II ion migration in oxidative degradation processes discussed by several researchers, it became clear that we needed to consider this mechanism. The *Calligraphic Lord's Prayer* was extremely fractured and embrittled in media-covered areas, with serious structural losses in the decorative text. In consultation with the curator, the conservators decided that using an unconventional treatment approach was worth the risks. Preliminary testing indicated the greatest

risks would be increased solubility of the ink resulting in a loss of media; the possibility of crystalline phytate precipitates forming on the surface of the medium; and the unpredictable behavior of calcium phytate left in the work after treatment. At the very least the treatment would reduce future ink degradation as well as deacidify the entire document.

In recognition of our discipline's diverse perspectives regarding the treatment of works with iron-gall ink, did we treat this work appropriately in the quest to balance stabilization with curatorial expectations? Did we assign treatment priorities and balance those priorities with risks accurately? Did we choose the "correct" deacidification step, providing stabilization and minor media loss? Did we make a well-informed decision, helping to promulgate new information accurately? This paper examined these issues and presented the results of this calcium phytate treatment on a museum object.

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