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Optimizing Ink Corrosion Treatment Protocols at the Library of Congress

ABSTRACT

The conservation staff at the Library of Congress (LC) is currently engaged in a research project that examines the efficacy of various iron-gall ink corrosion treatment protocols. Book and paper conservators at LC have for the last ten years employed treatment protocols that involve the use of modified solutions of magnesium bicarbonate. The efficacy of these treatments is now compared to more recently developed protocols that involve the use of phytic acid in addition to deacidification.

Samples were created by plotting even patterns of iron-gall ink on sized and unsized rag paper. Sizing was introduced in an effort to minimize the discrepancy between research sample papers and actual historic objects. The inked papers were subjected to various combinations of immersions in water, ethanol, and bicarbonate and phytate salts. The samples were aged artificially at a constant temperature and relative humidity and subjected to surface pH, Fe(II) test, burst test, and color measurements to compare these results with results obtained through prior ink corrosion research.

The presentation was an update of the research project, which was still in progress. The end goal of the project was to develop an effective protocol in which the many potential undesired side effects of treatment such as alterations to the ink, iron migration, and physical stresses on the paper will be diminished or completely avoided.

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