Kimberly Chancellor

Preservation: Cataloguing and Characterization

Assessing the Physical Condition of the National Book Collection

Infographic Summary

Assessing the Physical Condition of the National Book Collection’ flowchart outlines steps involved in testing and analyzing book sets sourced from participating institutions. This flowchart outlines the specific tests and data types considered in the ongoing project as well as a description of Set 2 as a case study for important differences.

Infographic Transcript Content:

Assessing the Physical Condition of the National Book Collection

Kimberly Chancellor – 2021 Junior Fellow | Preservation: Cataloguing and Characterization

[Three step timeline across the upper middle]

[*Inset image of several open stacked books*]

Preservation Division receives set of “identical” books from participating institutions.

[An arrow points from the books to a column of text labelled “Testing”]

Testing

Double Fold

pH

Tensile

Size Exclusion Chromatography (SEC)

Spot Tests

X-Ray Fluorescence (XRF)

Fiber Optics Reflectance Spectroscopy (FORS)

Fourier-Transform Infrared Spectroscopy (FTIR)

Chromaticity

Colorimetry

[An arrow points from “Testing” to a column labelled “Results”]

Results

Physical State of the Book

Identification of the Primary Component

Evidence of Paper Sizing

Evidence of Fillers Used

[Image: *line chart*, depicting multiple lines on a graph, each line demonstrating various peaks and valleys. Two black boxes on the graph zoom show specific portions of the line in greater detail.]

[Text box to the right of the graph]

What does this mean for Set 2?

According to noninvasive testing (i.e. FORS and FTIR spectra), two distinct paper types were present within this set. Both seem to be rag-based, but one paper type used clay filler. What makes this distinction interesting is that you can visually distinguish bands of darker clusters of pages within the book (as seen on right). These visual differences correlate with differing rates of degradation, even though both types have experienced the same environmental factors in their lifetime. This exemplifies how chemical properties of paper affect the shelf life of a book.

[Right side]

[*Inset image: detail picture of the edges of pages of a book showing lighter and darker bands of color*]

[Text box below graph]

FTIR graph showing the different types of paper found within an individual book, highlighting areas of interest (4527 cm-1 and 3700-3620 cm-1). The standard reference rag paper sample is shown in gray.

[Bottom left]

[*Inset image: Library of Congress logo*]