

## PHOTO ESSAY

## Conservation Treatment of William Bradford's *Of Plimoth Plantation*

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**Editor's Introduction:** *The Bradford Manuscript is among the most important sources of information about the Pilgrims and Plymouth Colony. It is remarkably well-preserved. Early in the sixteenth century, rag-based paper began to replace parchment book pages. Both parchment and rag paper are very durable. Indeed, seventeenth-century documents usually outlast those written on the highly acidic nineteenth and twentieth-century wood pulp-based paper. William Bradford's journal is a vellum-bound volume measuring 11 1/2" by 7 3/4". The ink is slightly faded in places but it is still completely legible. The pages are somewhat discolored but otherwise the almost 400-year-old document is in excellent condition, thanks, in part to the recent conservation treatment described in these pages.*

*Bradford, like all writers of his time, used a variety of spellings. Consistency in spelling was not a virtue; even important government documents might contain inconsistent spellings and reflect regional speech patterns. In addition, the manuscript exhibits a number of historical writing practices, such as the "f"-*

*shaped “s” which was used when the letter “s” was doubled or used initially. Bradford also uses common abbreviations. Jessica Henze is an Associate Book Conservator at the Northeast Document Conservation Center.*

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This article originally appeared as “Mayflower Passages: Conservation Treatment and Digitization of William Bradford’s *Of Plymouth Plantation, 1630–1650*” at the website of the Northeast Document Conservation Center at [www.nedcc.org/about/nedcc-stories/mayflower-passages](http://www.nedcc.org/about/nedcc-stories/mayflower-passages).

The original manuscript of William Bradford’s “*Of Plimoth Plantation*” is one of the great treasures of the State Library of Massachusetts. In fact, it is a national treasure. It is the document that tells us who was on the *Mayflower*, and contains the earliest surviving copy of the *Mayflower Compact*. It is an indispensable source of information about the settling of New England, but it is also an artifact with a history of its own.

William Bradford came to these shores in 1620 aboard the *Mayflower* and was appointed governor of Plymouth Colony in 1621. In 1630 he began to write an account of the origins and early years of the settlement. Bradford called his account “*Of Plimoth Plantation*,” although today, his original hand-written volume is often referred to as the *Bradford Manuscript*.

The *Bradford Manuscript* is a book of approximately 580 pages handwritten in iron gall ink on handmade paper and bound in a parchment-covered binding. It is impossible to know for certain how the volume looked while Bradford was working on it, but it is evident that it has passed through many hands and been changed in many ways since his time.

In 2013, the State Library of Massachusetts secured funding for conservation of the manuscript through the LSTA (Library Services and Technology Act) Preservation of Library and Archival Materials Grant, as administered through the MBLC Massachusetts Board of Library Commissioners). The Library sent the volume to the Northeast Document Conservation Center (NEDCC) to be digitized and conserved.<sup>2</sup>

When the volume arrived at the NEDCC Book Conservation lab, it contained not only William Bradford’s seventeenth-century text, but eighteenth-century annotations by scholar and clergyman Reverend Thomas Prince, nineteenth-century endleaves with manuscript text describing the history of the volume, and several documents not original to the text but bound into the volume at a later date. The parchment binding (probably calf

skin) also showed signs of having been significantly modified. The changes to the binding were likely made in the late nineteenth century around the time of the manuscript's repatriation after a more than one-hundred-year sojourn in England. The volume also showed evidence of two generations of paper repair, as well as other sewing and binding repairs. This complex history has become part of the story told by the manuscript.

The State Library's stated goals for the conservation of the Bradford Manuscript were to improve public access to this significant and well-loved resource and to protect the volume from further deterioration. As NEDCC conservators and photographers worked with the State Library of Massachusetts to develop the treatment and digitization plan, they came to understand that it was important to the Library that the treatment would address the many condition issues without significantly altering either the appearance of the book or the experience for a researcher using it.

## THE CONSERVATION TREATMENT

A few of the Bradford Manuscript's condition problems were obvious and a few were not so obvious. It was immediately evident that the front flyleaves were brittle and breaking loose from the binding, that one group of text pages was out of alignment with the rest of the text, and that one of the added documents was too large to fit safely within the binding. It was also apparent that the Mayflower Compact pages, which were exposed while the book was on display for many years, were dirtier than the rest of the pages, and that the spine of the binding was creased and splitting at the corresponding location.

Less apparent, but no less important, was the slow paper degradation caused by the iron gall inks, and the discoloration of the pages caused by earlier paper repairs which, while well executed, were made using poor materials. A final challenge was presented by the cover boards of the manuscript which are barely larger than the size of the pages so that the damaged sewing and weak spine allowed the pages to protrude beyond the covers, making them vulnerable to mechanical damage.

To address these condition issues, NEDCC conservators developed a plan that involved taking apart the volume, washing and mending the pages, stabilizing the binding and reassembling the volume. To meet the Library's goal of improving access, the Manuscript was imaged at two points in the treatment process. Images were taken before the volume was disassembled and again after the leaves had been washed and mended but before the book was reassembled. The following images reveal some of the steps in the conservation process.

The Bradford Manuscript is now safely housed in a custom-fitted box at the State Library of Massachusetts. Two facsimile volumes printed from the digital images captured at NEDCC are available at the State Library for patron use. The volume's digitized version is now available online at the State Library of Massachusetts' website: <http://archives.lib.state.ma.us/handle/2452/208249>.

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## Notes

1. A version of this article originally appeared as "Mayflower Passages: Conservation Treatment and Digitization of William Bradford's Of Plymouth Plantation, 1630–1650" at the website of the Northeast Document Conservation Center at [www.nedcc.org/about/nedcc-stories/mayflower-passages](http://www.nedcc.org/about/nedcc-stories/mayflower-passages).
2. Founded in 1973, NEDCC is a nonprofit conservation center devoted to the conservation and preservation of paper-based materials, including books, documents, manuscripts, maps, photographs, and works of art on paper. The Center serves clients nationwide, providing conservation treatment, digital imaging, and audio preservation services, as well as training, consultations, and disaster advice for collections.



This image shows the manuscript's appearance before conservation treatment.



The volume was first dis-bound by carefully cutting the cloth lining holding the text block into the case. Next the brittle, nineteenth-century flyleaves were separated from the text block (shown here). The ink on these leaves was found to be soluble so they could not undergo the same treatment as the rest of the volume. Methyl cellulose was used to soften the adhesive on the spine of the text block. The layer of adhesive was very thin and came off easily.



The sewing was removed and the folios (individual sheets of paper comprising two leaves) were separated.



The folios were washed in a solution of ethanol and filtered water (shown here). Layers of Hollytex were used to support the folios during washing. (Hollytex is a white, non-woven polyester fabric used for interleaving or support.)



The baths were changed frequently to flush away waste products produced by paper degradation. Previous mends were removed during the washing process (shown here)..



After washing and alkalization, the folios were brushed with gelatin size and dried between sheets of heavyweight Hollytex and wool felts.



After mending tears and reinforcing spine folds using Japanese kozo paper and wheat starch paste, the treated folios were ready to be photographed again in the NEDCC Imaging studio. Also, this image shows the inward crease in the spine of the case which corresponds to the point at which the volume was exhibited open for many years.





The splits and creases in the spine of the parchment binding were reinforced from the inside using Japanese kozo paper.



The text block was sewn with linen thread onto linen tapes. New handmade paper endsheets were added.



The re-sewn text block sits in the reinforced binding, prior to casing-in. Casing-in, the reattachment of the binding to the text block, was done using the new sewing supports and airplane linen hinges added during the sewing process.



The volume is now housed in a cloth-covered drop-spine box with a gold stamped leather label.



2015 Massachusetts State Librarian Albie Johnson and Head of Special Collections Beth Carroll-Horrocks view the conserved volume at the State Library of Massachusetts. Two facsimile volumes are now available at the State Library for patron use as well. The volume's digitized version is available online at the State Library of Massachusetts' website: <http://archives.lib.state.ma.us/handle/2452/208249>.

## STATE LIBRARY OF MASSACHUSETTS

The State Library of Massachusetts, located at the State House, was established in 1826 and “supports the research and information needs of government, libraries, and people through . . . services and access to a comprehensive repository of state documents and other historical items.” It is open to the public 9:00 – 5:00 and offers wonderful online access.

During the mid-19th century, the Library evolved into a comprehensive research library to support the work of the legislature, governor’s office, and other public officials. In addition to legal and public document holdings, the Library collected materials on a wide range of research topics, including political, historical, statistical, economic and scientific works.

Throughout the late 19th and early 20th centuries, the Library’s collections and operations grew. The Library moved to its current location in 1895 and added an annex for additional stack space in the 1920s. In the 1970s this annex became the Library’s Special Collections Department, where rare and special items such as maps, photographs, atlases, and manuscript materials are located. These include treasures such as the Bradford Manuscript and the medal presented to Senator Charles Sumner by the Haitian government.

In 2007, the library created an online repository of state documents and in 2009 it received funding to enhance its digital library. The Library now focuses on collecting material specifically about Massachusetts, particularly state and municipal publications and histories. In the past decade, much of the Library’s efforts have centered on providing electronic access to these materials by both capturing contemporary state publications and digitizing older Massachusetts-related materials.<sup>1</sup>

## ONLINE PHOTO EXHIBITIONS

The library curates several exhibits each year that feature items from its collections. These wonderful exhibits are available for view through the Library’s Flickr page at [www.flickr.com/photos/mastatelibrary/albums](http://www.flickr.com/photos/mastatelibrary/albums). Here is a sampling:

- "Plymouth, Massachusetts: People, Politics and Primary Resources," Fall 2008
- African Americans in the Massachusetts Legislature: A History," Winter 2009

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<sup>1</sup> Information compiled from the website of the State Library at [www.mass.gov/orgs/state-library-of-massachusetts](http://www.mass.gov/orgs/state-library-of-massachusetts) and *Wikipedia*.

- "Holyoke: Queen of Industrial Cities," Fall 2009
- Massachusetts Women in Politics, Winter 2010
- "Worcester: Heart of the Commonwealth," Winter 2011
- "Bringing Pure Water into the City of Boston," Fall 2012
- "The Contributions of Massachusetts to Abolition and the Civil War," Spring 2013
- "The History of Transportation in the Commonwealth," Summer 2013
- "The Beginnings of the Textile Industry in Massachusetts," Fall 2013
- "Massachusetts in World War I," Spring 2014
- "Legends and Lore of Massachusetts," Fall 2014
- "A History of Agriculture in Massachusetts," Summer 2015
- "Massachusetts Through the Lens: Photograph Collections Fall 2015
- "A Historical View of the Massachusetts State House," Spring 2016
- "A History of the Fishing, Whaling, and Shellfish Industries," Summer 2016
- "Back To School: Education in Massachusetts," Fall 2016



**The Massachusetts State House in Boston,  
Home of the State Library of Massachusetts**