The 400-year-old Adair chantbook is marked by rich evidence of changes and alterations. Whole sections have been scraped in or cut out, and many leaves have been scraped clean and rewritten, editing which likely reflects changes in papal-approved liturgy as the language and order of the Mass was altered. Examining this tangible evidence provides key information, but also points to paths of inquiry which require more data than is immediately visible. Here, a traditional humanities examination raises questions which it cannot satisfactorily answer.

When investigating any artifact, the ability to see into the object yields far more information than a surface-level inquiry. As the undergraduate researcher on the UMKC CODICES team, I helped develop an imaging system to extend the capabilities of manuscript analysis, and address instances where a traditional inspection cannot deliver all possible data. Our multispectral process functions as a “digital autopsy,” enabling analysis beyond what is immediately visible.

This amateur script, clearly not the work of an official scribe, recurs throughout the Adair. Women were not trained as scribes, and convents (typically poorer than monasteries) were likely unable to hire a professional hand. The prevalence of inexpert scripting suggests nuns were performing the required liturgical edits themselves. However irresistible this hypothesis may be, it cannot be properly tried if we limit our inquiry to the immediately visible data: the current contents of the scraped pages. The original content, what was edited or removed, must be made available in order to understand why and how these edits occurred. Accessing all the possible data requires a collaborative effort to work for and with our local cultural sites.

The Adair Chantbook At-A-Glance
- Purchased prior to World War II by UMKC alumnus James Adair
- Donated to UMKC in 1968, currently held in LaBudde Special Collections
- Contains no parchment pages and nearly as many chants
- A compilation of many manuscripts, none of which date to the 14th century

Previously, the cost of a multispectral imaging system could be extremely prohibitive—enough so that such systems were usually only found in specialized libraries, large museums and foreign universities. By developing an affordable version, access to the research this technology permits is expanded exponentially.

We are currently building a replica of our system for the University of Missouri-Columbia to use in examining their collections, and will work with them to apply this process to their latest acquisitions: a 16th-century Czech missal and a 17th-century Russian menaion.

At present, we are also analyzing several manuscripts from the archives at Conception Abbey and will begin examining documents from the Mount St. Scholastica library this summer. A key initiative behind our development of this system was the facilitation of regional manuscript research on par with larger institutions in other areas. This objective is furthered and complemented by bringing the innovative research techniques developed at our universities to work for and with our local cultural sites.

The remains of a palmprint, rendered in blue (4)

Traditional Humanities Inquiry

Technological Innovation: Beyond Tradition

Future Phases: Facilitating Access

Potential Future Application:
- Laura Ingalls Wilder House
- Mark Twain Boyhood Home
- Missouri Humanities Council
- Thomas Hart Benton collection
- Harry S Truman Library

Projects in Process:
- CODICES Lab - UMKC
- UM-Columbia Collections
- Conception Abbey
- Mount St. Scholastica

At left: The top four measures of this page have been scraped and rewritten in a comparatively unpracticed hand. Notice how the original text is faintly visible in areas, and elsewhere is completely obscured by the new text. This is a clear example of an instance where the total date present exceeds what is discernable. A traditional “naked-eye” inspection will not produce a workable reading of the previous text and musical notation.

At right: An unaltered hand in a rewritten section of the Adair

Below left: 38r has been scraped virtually blank. The shadows that do remain are distorted by the bleed-through effect of ink on the recto side of the page.

Below right: 38r under VIS process.

Compiling multiple images taken at various wavelengths produces a 3-D virtual stack image, which offers up multiple points of research from a single 8x12 cm section.

In addition to revealing erased text (5), we can see:
- Compositionally different ink used after scraping (1)
- Scraped musical notes invisible to the eye (2)
- Isolation of notes from reverse side of page (3) and even...
- The remains of a palmprint, rendered in blue (4)

Further Exploration: Three-dimensional Imaging

Monastic Mysteries: Exploring the Adair Chantbook
Annie Liljegren
Mentor: Dr. Virginia Blanton
University of Missouri - Kansas City

The Adair Chantbook
- Donated to UMKC in 1968, currently held in LaBudde Special Collections
- Contains no parchment pages and nearly as many chants
- A compilation of many manuscripts, none of which date to the 14th century

Monastic Mysteries: Exploring the Adair Chantbook
Annie Liljegren
Mentor: Dr. Virginia Blanton
University of Missouri - Kansas City

The 400-year-old Adair chantbook is marked by rich evidence of changes and alterations. Whole sections have been scraped in or cut out, and many leaves have been scraped clean and rewritten, editing which likely reflects changes in papal-approved liturgy as the language and order of the Mass was altered.

This is a clear example of an instance where the total date present exceeds what is discernable. A traditional “naked-eye” inspection will not produce a workable reading of the previous text and musical notation.

A key initiative behind our development of this system was the facilitation of regional manuscript research on par with larger institutions in other areas. This objective is furthered and complemented by bringing the innovative research techniques developed at our universities to work for and with our local cultural sites.

When investigating any artifact, the ability to see into the object yields far more information than a surface-level inquiry. As the undergraduate researcher on the UMKC CODICES team, I helped develop an imaging system to extend the capabilities of manuscript analysis, and address instances where a traditional inspection cannot deliver all possible data. Our multispectral process functions as a “digital autopsy,” enabling analysis beyond what is immediately visible. This amateur script, clearly not the work of an official scribe, recurs throughout the Adair. Women were not trained as scribes, and convents (typically poorer than monasteries) were likely unable to hire a professional hand. The prevalence of inexpert scripting suggests nuns were performing the required liturgical edits themselves. However irresistible this hypothesis may be, it cannot be properly tried if we limit our inquiry to the immediately visible data: the current contents of the scraped pages.

The original content, what was edited or removed, must be made available in order to understand why and how these edits occurred. Accessing all the possible data requires a collaborative effort to work for and with our local cultural sites.

The Adair Chantbook At-A-Glance
- Purchased prior to World War II by UMKC alumnus James Adair
- Donated to UMKC in 1968, currently held in LaBudde Special Collections
- Contains no parchment pages and nearly as many chants
- A compilation of many manuscripts, none of which date to the 14th century

Monastic Mysteries: Exploring the Adair Chantbook
Annie Liljegren
Mentor: Dr. Virginia Blanton
University of Missouri - Kansas City

The 400-year-old Adair chantbook is marked by rich evidence of changes and alterations. Whole sections have been scraped in or cut out, and many leaves have been scraped clean and rewritten, editing which likely reflects changes in papal-approved liturgy as the language and order of the Mass was altered.

This is a clear example of an instance where the total date present exceeds what is discernable. A traditional “naked-eye” inspection will not produce a workable reading of the previous text and musical notation.