

Assistant Editor: Danielle Nowak, *The Morton Arboretum*.

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WILL Radio Presents: The Preservation of Transcription Discs at the University of Illinois

By Cristina Kühn, *Media & Preservation & Digital Reformatting Project Manager, University of Illinois at Urbana-Champaign* and
Brinna Michael, *Pre-Professional Graduate Assistant, University of Illinois at Urbana-Champaign*



A WILL transcription disc with transparent, cracked glass base and severe delamination. Photo by Miyuki Meyer.

Lee Somers has a distinct voice. His intonation as he lectures about beans draws the listener in—whether you like beans or not. He reminisces on the phrase “aw, he don’t know beans,” once used as a measure to denote “great ignorance.”¹ But his explanation of the edible seed encouraged the opposite: knowing about the bean for your home garden. This is one of several gardening and food lectures he made on live radio throughout the 1940s. His cadence, and what he certainly knew about beans, is directly cut into a 16-inch lacquer-coated transcription disc. This disc is number 2669 out of 3,184 discs recorded by WILL radio station at the University of Illinois Urbana-Champaign campus (U of I). Lee, as the aforementioned disc is fondly referred to in this article, and accompanying discs span several decades’ worth of content. The discs

preserve “lectures, convocations, symposia, sports and musical events and public ceremonies . . . and news and feature programs rebroadcast by the station concerning the University, higher education, international relations, politics, fine arts, humanities, literature and science.”²

In 2009, efforts at U of I to preserve these discs commenced. A partnership formed between the WILL radio station, the University Archives, and the Media Preservation Unit. Lee was set to undergo a 10-year journey.

The Project

What did Lee and his fellow discs go through? The overall workflow for the project was this: Discs were transferred from WILL for accessioning and processing by the archives. They were then passed onto the Media Preservation Unit for digitization through the outsourced help of Kentucky-based vendor Scene Savers. The original discs, including Lee, were stored in archival boxes and placed in a high-density storage facility located on the edge of the U of I campus. The files themselves were ingested into the library’s long-term digital preservation repository, named Medusa, with the intention of eventually making them publicly accessible to library staff, patrons, and scholars.

In practice, however, the project was a much bigger challenge; the question of how to carry out large-scale digitization with limited staff and financial resources revealed itself early.

The archives oversees over 25,000 cubic feet of office records, publications, and personal records. With a staff fluctuating from 10 to 25 archivists, academic professionals, graduate assistants, and undergraduate assistants, the personnel assigned to the project had to divide their time between the WILL project and other job responsibilities. The Media Preservation Unit didn’t exist until 2011 when founder and head Joshua Harris was hired. Customized media labs for in-house preservation and conservation would not exist for another few years.

There was also the matter of money. Digitization of audiovisual materials involves a complex skill set including familiarity with analog formats and their respective

playback equipment, engineering, conservation, and digital preservation best practices. In short, the digitization of over 3,000 discs would not be cheap. With the added cost of supplies—storage boxes, sleeves, and shipping materials—this project became demanding of both time and money.



A WILL transcription disc with transparent, cracked glass base and severe delamination. Photo by Miyuki Meyer.

How to counter these issues? The answer: batches. Discs were divided into batches of approximately a hundred discs in each. Archivists created an inventory in Excel for each batch, documenting title, date recorded, speakers, subject, and program title for each disc/side. This inventory was given to Scene Savers along with the discs, the latter meticulously packaged for transport, and was personally picked up (and returned) by the vendor.³ The digitization of the batch ranged from a few weeks to a few months. Along with digital surrogate files, the vendor created an inventory of its own detailing technical attributes for each disc/side: date of digitization, playback speed, duration, and relevant notes. In total, there were 27 batches—Lee was in batch 22 and wasn't digitized until 2014, five years after the initial start of the project.

With the completion of Batch 27 in 2016, the final digital surrogates ingested into Medusa, and the discs stored away, it was thought that the project ended. However, in the latter half of 2016, it was decided to review the whole result to ensure quality control, seeing as seven years had passed since the onset of the project.

A student was hired to perform significant digital file cleanup of approximately 3TB of data.⁴ This meant

organizing the digital surrogates as per media preservation and archival information package standards, investigating gaps or missing files in the collection, creating additional digital files as needed, and linking all existing metadata into one master inventory.

Current media preservation best practices of creating digital surrogates for analog audio formats call for a set:⁵

- Preservation master—This uncompressed, unedited, high-quality Broadcast Wave Format (BWF, .wav) file is meant for deep storage and to be used if the mezzanine is lost.
- Mezzanine (or working master)—This BWF is derived from the preservation master at a slightly lower resolution. This working copy can be edited, manipulated, and used to create new derivative files.
- Access copy—A compressed file, usually an mp3, made for online sharing or streaming.

Therefore, Lee, and every other disc/side, didn't have just one corresponding digital surrogate, they had three.

As this second phase of the project progressed, a number of information and file gaps were found. Inventories of both the archives and Scene Savers were misplaced. Many files previously considered present and ingested were missing. Because Medusa didn't exist until 2014, the thousands of digital surrogates were stored across storage servers and external hard drives for years before coming together for ingest.

Inconsistency in the generation of metadata created uncertainty about the contents of many discs. For example, some discs, like Lee, only had triplicate files for side A, making it unclear if side B was blank or the matching files went missing. Other discs had only one or two master files, instead of the required three. The result was a long list of discs to re-examine and confirm if redigitization was necessary. Discs were examined across 97 boxes and considering that the project's 3,184 discs were divided across 127 boxes with an average of 25 discs in each, this was a considerable amount to re-examine.

Naturally, a third phase unfolded from the second. A new student was hired to redigitize 74 discs in-house, Lee among them, and continue to refine the master inventory, while 196 were outsourced to Scene Savers. The in-house work was eye-opening: Lee and the other 73 discs required thorough hand and machine cleaning

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before going anywhere near the turntable for digitization. Lacquer discs often suffer from palmitic acid due to the loss of plasticizer. This deterioration can cause minor to severe delamination of the lacquer coating and sometimes total incapability of playback. The amount of palmitic acid on the discs varied—some had to be cleaned several times before a decent sound capture could be achieved. Hand cleaning consisted of careful scrubbing of the grooves with a toothbrush using a solution of soap and distilled warm water; an ammonia solution was reserved for the more severe cases of acid. Sound quality and volume levels were tested before actual capture, as each disc is unique, and the palmitic acid only served to lessen that quality. Lee’s bean lecture lasts 10 minutes and 4 seconds, but it took a minimum of an hour to prepare Lee before being able to capture those 10 minutes. An appreciation for what Scene Savers carried out for years was ever-present in the unit. That, and a justifiable fear of toothbrushes.

With the project just recently passing the 10-year mark, and the third phase complete, the question arises: what do the final steps look like? For now, it is describing and storing those 127 archival disc boxes, ingesting 4TB of data comprised of 18,123 digital surrogates and one master inventory into Medusa for persistent digital storage, and providing access to those files through a digital interface populated with carefully assigned descriptive metadata.

Lessons Learned

Early project notes don’t indicate a set time frame for completion. In fact, the only surviving notes of the first

year of the project only mention that 2,000 discs were to be digitized, meaning an additional 1,184 discs were found and added to the project over time. Looking back after the completion of the third phase inspires a certain appreciation and recognition of the “whys” behind the length of this project. Additional demands on Archives and Media Preservation staff, as well as the vendor, often caused significant delays in the project’s progress. Palmitic acid wasn’t the only condition issue; there was also warp- age, cracked bases, delamination, scratches, and mold to deal with. Redigitizing the 74 discs in-house took four months, performed by one student for 10 to 15 hours a week, reinforcing the reality that audiovisual preservation work is labor intensive and rarely straightforward.

Lee changed hands often; archivists and students would depart, and it took time for new ones to get acquainted with the discs, creating consistent interruptions and discrepancies in workflow. When one batch was complete and returned from the vendor, another batch didn’t always immediately follow, bound to the cycle of fiscal years. This was not a grant-funded project. Payment for each batch came from digitization funds allotted to the Media Preservation Unit every year. These funds have never been unlimited nor exclusively for the WILL project. Financial management often determined when to send the next batch of discs, calculating the cost of that batch and arranging a time frame for its completion so that the invoice could be paid immediately upon receipt, all the while balancing other projects requiring outsourced help.

Other large-scale digitization and preservation projects have been undertaken with consideration of the lessons learned during the WILL transcription disc project. Several of the most significant impacts on current practices include cocurated workflow documentation, uniform metadata creation, and interdepartmental project management.


That all being said, work with Lee is nearly finished. The disc is back in its archival box, back on the shelf surrounded by the others, ideally never to be touched again. Lee’s descriptive and technical metadata are noted in the master inventory, and the digital surrogates are ingested with the access file waiting in the wings for public access. Soon, many will know about more about beans.



Machine cleaning a transcription disc. Photo by Cristina Kühn.

Notes


1. Lee Somers, “The Garden Clinic—Beans” (1949), Sound Recordings, 1927–1975, Record Series 13/6/5, University of Illinois Archives.
2. “Sound Recordings, 1927–1975,” Record Series 13/6/5, finding aid, University of Illinois Archives, <https://archives.library.illinois.edu/archon/index.php?p=collections/controlcard&id=1994>.
3. The decision for personal pickups/deliveries was based on location (Scene Savers is a three-hour drive away from the U of I campus) and the inherent fragility of the discs. Damage during transport and shipping costs would be reduced considerably compared to standard mail carriers. Even with this advantage, the discs were carefully packed between sheets of coroplast corrugated plastic sleeves.
4. For this phase, all files had to be downloaded from Medusa.
5. William Chase, “Preservation Reformatting,” in *ARCS Guide to Audio Preservation* (Association for Recorded Sound collections, Council on Library and Information Resources, Library of Congress, 2015), 112, <https://clir.wordpress.clir.org/wp-content/uploads/sites/6/pub164.pdf>.



WVCLIFFE BIBLE TRANSLATORS
TURNER BROADCASTING
LOS ANGELES ANGELS
CLEMSON ATHLETICS
COCA-COLA
CATERPILLAR
COURT TV
BUFFALO SABRES
UNIVERSITY OF SOUTH CAROLINA
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EMILY HALEVY
770.932.9801
emily@preservesouth.com