

Ghost Whispers: Preserving Sounds of the Past for the Future

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Introduction:

When studying history, all aspects of a time period are interconnected. The styles of art forms are just as much a representation of the events and attitude of the years as facts that are written down by historians. Cultural studies can reveal as much about a time period as history texts. At the University of California in Santa Barbara, librarians are attempting to capture the voices of generations that will soon be lost forever. The “Cylinder Preservation and Digitization Project” is building a collection of cylinder recordings, one of the first commercially available recording formats. The project is designed to protect both the sounds recorded on these cylinders and preserve the condition of the cylinders themselves.

Goals and Objectives:

The Cylinder Preservation and Digitization project is an attempt to collect, digitize and catalog these cylinders for public use by the academic community. Beginning in January of 2002, the University of California took on the project. The main goals of project at the time were to a) catalog and store the cylinders, b) digitize the cylinders and c) investigate and choose a method of providing the resulting audio files into an online, free database. After working on the project, it was decided that technology available would allow the project to move forward to digitizing the entire collection.

The final goal of the project is to put the cylinders onto the digital database. However, these cylinders take some time to digitize and cost money as well. The project is ongoing, as the group constantly receives donations of physical cylinders to be cataloged. The group’s main goal is to maintain the catalog with a large collection of

audio from their physical cylinder collection, while also preserving the physical cylinders themselves.

Description and Scope:

To date, the project has grown, adding more and more cylinders to the digital library. It began with public access to 60 cylinders, to gauge the performance of the procedure to convert the cylinders into audio files¹. After the program was established as a success, the project took off, archiving as many of the remaining cylinders as possible. From the original pilot project of 60, an additional 5,000 cylinders have been added to the roster. While this is an impressive number, there are still a large number of cylinders that needed to be digitized. After the materials have been digitized, they are posted onto the online database, supported by the university group. This database can be easily searched if someone is look for a specific song or topic, as well as an easily browsed format that breaks the material down using data in the catalog.

The physical cylinders are also preserved. The wax and tinfoil cylinders are notoriously fragile and need special care to keep them safely stored. These cylinders (while no longer necessarily crucial for the audio process) are crucial technological advancements in the science of sound. These artifacts are part of a crucial transitional period in sound technology. These cylinders, being the first commercially available sound reproduction technologies, are a crucial part of sound recording technology and cultural advancement. The cylinders have varying degrees of rarity, so the protection of these recordings is also an important part of this projects goals.

¹ See *Cylinder Preservation and Digitization Project-Pilot Project*

There are other projects such as this one. Discographies are popular resources for individuals searching for musical databases, providing a collection of digitized cylinders for the public to enjoy and use. These cylinder catalogs have not been updated since 2003 and only contain lists of cylinders that have been collected. What is different about this collection of cylinder audio files is that they are available for the public to listen to instantly. Most other sites require purchase of the cylinders for the viewer enjoy. These cylinders are of a higher quality and stronger materials, but do not have the accessibility of the project at the University of California.

Importance:

Pioneered by American inventor Thomas Edison, cylinder recordings (from tinfoil prototypes to later celluloid recordings) span over fifty years of history, collecting the cultural voices of generations. Cylinder recordings were primarily played on the Edison phonograph. Prior to the disk recording, these cylinders were the primary sound recording medium². These cylinders (especially early versions of the wax cylinders), however, were incredibly fragile by nature and could easily be damaged or broken. This was especially true in the case of the wax cylinders while were the most popular. In addition to physically shattering in accidents, these wax cylinders are also subject to mold, temperature changes and natural oils from human touch³.

By digitizing and protecting these cylinders, the University of California is guarding the audio information on these otherwise frail mediums. Keeping these cylinders is an incredibly important part of the culture from the time they were created, providing cultural insight and offering background for historical analysis. While

² See *Cylinder Preservation and Digitization* website, under the subject *Cylinder History*.

³ See *Brown Wax Cylinders*

entertaining, these cylinders are also important for understanding cultures that have long since been forgotten.

Music databases are not uncommon, but the Cylinder Preservation and Digitization Project because it not only stores the audio on the cylinders, but keeps the cylinders themselves. The project keeps the cylinders on site, but also keeps them safe from damage. This is a crucial part of the project, since the cylinders are very fragile and easily broken and rendered impossible to read.

The most crucial part of this project is the accessibility of the materials after they have been digitized. The website is a constantly active area, not restrained by physical conditions that prevent users from browsing and downloading from their collections. By providing public access for free, these artifacts can now be easily enjoyed by anyone with access to the site.

Prospective Features and/or Functions:

After reformatting the material, the cylinder recordings are made available to the public. The material is both entertaining as well as educational. The available recordings range from late 19th to early 20th century, covering a variety of musical styles from different cultures. This database is easily searchable and can also be quickly browsed by general categories, such as types of instruments used, subject/genre or foreign/Ethnic cylinders that the group has also digitized. The group not only contains material that can be entertaining, but also educational. The cylinders cataloged also contain 'ethnic humor' recordings that can be analyzed from an academic perspective. Also contained in the catalog is a collection of topical subjects from the time that they were recorded. From

these, academics can get audio accounts about World War I, Prohibition and other first person accounts of major historical events.

These witness and musical recordings are available for public use and online for free streaming or download. These recordings can be used in education, as well as personal entertainment. These materials available to the public can also be used for creative projects (under certain creative copyright laws)⁴.

By providing the public with this material, the Cylinder Preservation and Digitization Project gives people a rare insight into the cultural and some political atmosphere of an older era. These can be used by a variety of people for educational and creative project.

Methods, Procedure and Technology:

The process required playing the cylinders through an archeophone (a machine designed specifically to read any kind of cylinder. Different from the phonograph, the archeophone reads the cylinders with a much more sensitive needle and translates those sounds into digital figures that the computer stores. The archeophone reads the cylinders and puts the information into a digital format that can be used later for the database audio files. The files are saved in this format and brought to a digital workshop program that allows the technicians working on the project to clear the audio into a better format, taking into account things such as pitch, feedback and clarity.

The files are stored on a center on campus. These files are processed and “cleaned up” for better production. The sound quality is not always the best on the

⁴ The Creative Commons License allows this, as long as the creative work isn't used to attempt to make a profit. As long as the material is non-commercial, the sites material is free for public use.

cylinder recordings, so the team does what is possible to make the audio as clear as possible. After the project technicians adjusted the quality of the sound and compressed the files into an easier format, the file is then converted into an MP3 file and posted onto the online database⁵. On the website for the project, the public can browse the collection and download or stream the audio files. The public can browse the collection and download the files for free or stream them directly to their computers.

Evaluation:

The project results are difficult to track. The group is constantly building the collection, jumping from 60 audio files to over 5,000 in a few years. The digitization process is not incredibly time consuming, but the reason it takes so long is that each file costs money to make. The project also focuses on clearing up the material's quality so that it is both easy to access as well as listen to. The website itself has been listed as one of the best 50 websites by TIME magazine. The program has also had success by finding a combination of technology and process that allow for the audio information to be copied from the older technology into a more permanent format that doesn't run the risk of total obsolescence.

Budget/Funding

For funding, the program relies primarily on private donations (both financial and donations of cylinders themselves). Individuals can 'adopt' a cylinder already available and the money provided will go toward digitizing and cataloging the audio data⁶. In addition to individual donations, larger groups have donated money toward the effort.

⁵ See *Cylinder Preservation and Digitization* website, under the subject of *Pilot Project Technology*.

⁶ See *Cylinder Preservation and Digitization* website, under the subject of *Donate Collections*.

The Grammy Foundation and the Institute of Museum and Library Services have both given large grants to the group so that they can continue the efforts of building the digital collection of over 8,000 cylinders. With this money, the group purchases and digitizes the cylinders, but also provides for the website funding and other various payments required to keep the website free for anyone with access to the site.

Resources:

Aside from the public funding, the program also has a few other resources at their disposal. The project began (testing the initial 60 recordings for digital adaption) with one student from a nearby college⁷. Since the project picked up momentum (and more funding) the group has expanded to encompass a much larger staff. The staff consists of both staff working on the project and students working with the technicians and specialists. The group works in an on-campus facility where the technology and cylinders are stored. Most of the cylinders are acquired by donations. As the cylinders are digitized, they remain with the project team for storage and preservation.

The cylinders themselves are slightly trickier to come by. Most of the cylinders are found by donations from private investors. Some of the grant money and financial donations go toward purchasing the cylinders, but most of the money goes toward digitizing and upkeep of the website database.

Schedule of Progress

The program is difficult to put an exact date down for a finished schedule. However, the group's progress suggests that the project will finish as the group gets more funding from the public and grant options. After the process for converting the materials,

⁷ See *Cylinder Preservation and Digitization Project-Pilot Project*

the database remains available to the public for as long as the website can remain updated.

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