

## **Lunchroom to Boardroom: An Audio Digitization Project**

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### **Abstract:**

The University of Queensland Cybrary in partnership with the Distributed Systems Technology Centre (DSTC), has created a searchable, web based digital oral history resource, based on a collection of stories of women involved in the Queensland Labor movement. A Trades and Labour Council of Queensland oral history collection was used to develop a framework for retrieval of audio materials on the web. A system for linking digitized media files to indexes created from transcripts (Meggie) has been developed. This allows the media file itself to be searched via key words. A trial was conducted and work is now proceeding on completing the collection. The final product will be made available via the Library's web site. The process followed, the choices made, the problems overcome, and the results achieved, will be outlined.

### **Digitization of Resources in the Humanities at UQL**

At the University of Queensland, our approach to digitization has been driven by a number of factors. Primarily,

- the need to preserve special collections, particularly collections that are in less durable formats, and
- the desire to make collections more accessible to researchers throughout the world.

Some of the first digitization projects undertaken targeted pictorial collections in the University of Queensland's Fryer Library. The Fryer Library holds the special collections of the University of Queensland Library (UQL) and has an extensive Australian studies collection of published and unpublished material. The strengths of the collection are Australian literature, Queensland history, and Aboriginal and Torres Strait Islander studies.

The Hume Collection and the Alcock Collection are two of these collections and the projects to digitize them are described. It is not the intent of this paper to cover the Library's image collections in detail. Another stream in the program will address image collection management. More details of the University of Queensland Library's projects are available from the Library's website (<http://www.library.uq.edu.au/about/digital.html>).



Lawn Tennis 1884  
Hume Collection : Hume 108

The *WC Hume Collection* .. A *Pictorial history of life in the late 19<sup>th</sup> Century* consists of 1,000 photographs which have now been digitized, described and indexed. A virtual exhibition of these photographs has been compiled and is available on the Library's website (<http://www.library.uq.edu.au/fryer/hume/>) . The Hume collection is one of the collections which will be added to *PictureAustralia*

(<http://www.pictureaustralia.org/>).<sup>1</sup>

The images take researchers beyond the manuscripts of the collection and provide a window into the personal and public world in which the Hume family lived. Images of family, friends, social activities and private houses are interspersed with those of public buildings, pictorial records of survey tours, and overseas trips. The initial digitization was funded by the National Library of Australia's National Preservation Office Community Grants.



1 May 1938 The Medical School  
University of Queensland

The University of Queensland Library was the first university to become a member of *Picture Australia* and the *Alcock Collection* .. *Images of Early Brisbane* is searchable from this website. Take the *Brisbane Trail* (<http://www.pictureaustralia.org/trails.html>) and see images covering the period 1860 to 1900. The originals were glass lantern slides and so this collection was a high priority. The original digitization was funded by a local history grant received from the Brisbane City Council.

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<sup>1</sup> PictureAustralia, hosted by the National Library of Australia, provides a gateway to images from the collections of leading cultural institutions from the late eighteenth century through to the present.

While the Library had developed a broad strategy for ensuring effective access and preserving its pictorial collections through digitization, developments have been slow and somewhat piecemeal. The audio collections on magnetic tape held in the Fryer Library as well as the University Archives, which the Library manages, are decaying. It became imperative that something be done about long-term preservation. The Library had already started to trial different digital formats which would address the preservation issue. This was followed by a partnership with the Distributed Systems Technology Centre ( DSTC) to develop a searchable, web-based resource which would provide access to the wider research community. The collection selected to trial this new development was *From Lunchroom to Boardroom*, an oral history project.

### **Why digitize oral history collections?**

The challenge for any library or archive that holds primary historical material is to provide the best possible access to and use of their materials without endangering their long-term retention. The responsibilities of preservation and access often conflict. This problem is especially difficult in relation to audio recordings. The invention of magnetic tape in the 1930s made it possible to capture the sounds of many of the twentieth century's greatest historical moments. The human voice for the first time had the potential to truly echo through the ages. However, at least in the short term, this dream has been a flawed one. Magnetic tape has at best proven to be only a temporary solution. Physically fragile, the very act of playing tape can cause its destruction, and if left on the shelf decay occurs due to the effects of heat, humidity and electromagnetic radiation. In the past, the solutions were expensive storage facilities and the transfer of recordings to more stable formats with the added burden of maintaining often antiquated playback equipment.

The digital revolution of the last decade has changed the approach to preservation and access dramatically. Often when people consider digitization of rare materials as a preservation strategy the major focus is conservation work and enhancing degraded recordings to their former noise-free glory. However, there is another dimension. Because of the ease of copying digital recordings indefinitely without endangering the original master, and the way these copies can be easily accessed via the web, for the first time universal access to these recordings is able to be provided without endangering the original item. Of course there are still issues. To quote Valerie Cloonan:

"...to digitize a collection does not necessarily lessen the demand for the original materials. Sometimes quite the contrary occurs: a digital item has more visibility in the world, so since more people will know of its existence, there may be increased demand for the original." (Cloonan )

While acknowledging Valerie Cloonan's concerns, a greater awareness of the treasures hidden in special collections throughout the world, accompanied by increased use, is surely an outcome welcomed by librarians, archivists and researchers.

Another issue worth noting is that digital recordings are still most commonly stored in a magnetic format (i.e. disk and tape), and because of this magnetic nature they are just as vulnerable to the various forms of degradation as analogue recordings. Even

the more stable optical compact disk has the potential to decay. As is the case with many approaches to preservation, we have managed to buy some more time.

## **The collection**

*From Lunchroom to Boardroom* was an oral history project by historian Therese Collie and visual artist Judith Hewitson, supported by the Oral History Association of Queensland, the Union of Australian Women and the Trades and Labour Council. The objective of the project was to record the stories of a wide variety of women who participated in the Queensland Labor Movement from the 1930s through to the 1970s. Throughout 1991, sixteen interviews were conducted with prominent activists such as Connie Healy, Susan Dickson and Marie Crisp. Connie Healy was a member of the Australian Communist Party, the Clerks Union and an activist for women's rights in the work place. Susan Dickson was a member of the Teachers Union and Communist Party in Britain. She left the Communist Party for the Labor Party and worked with aboriginal children, the prisoners' aid society and campaigned for greater numbers of women in local politics. Marie Crisp worked in the metal trades during World War II, joined the Vehicle Builders Union and Miscellaneous Workers Union, and was a member of the Union of Australian Women. She was a lifelong campaigner for the rights of women workers and aboriginal people.

The recordings of interviews with these remarkable women were entrusted to the Library's Audio Visual Service, then managed by Gulcin Cribb, at the University of Queensland Library. More recently the collection has been moved to the safety of the University of Queensland's Fryer Library, where it remains to this day. (Collie et al. )

## **Opportunity and technology come together**

The decision to digitize the *From Lunchroom to Boardroom* collection of recordings as the University of Queensland Library's first major audio digitization project, was the result of a happy coincidence. In 1999, Dr Jane Hunter from the DSTC Pty. Ltd. was looking for some recordings she could use to demonstrate the potential of her digital audio recording indexing tool *Meggie* (an MP3 metadata editor generator) which was developed as part of the MAENAD - Multimedia Metadata Project (<http://www.dstc.edu.au/RDU/maenad.html>). MAENAD was a project "to develop an underlying data model, metadata mapping schemas (RDF, XML), metadata generators, metadata repositories, query languages, search interfaces and search engines which can provide solutions to the problems of resource discovery, preservation, delivery and management " (Hunter ). With the approval of the Trades and Labour Council of Queensland and Therese Collie, Jane and her collaborator Darren James digitized a number of the *Lunchroom* recordings and used the *Meggie* software to create indexes of subject headings and transcript words, associated with defined segments within the recordings. The resulting online database made it possible to search for a keyword, be taken via a Java interface to the point in the audio recordings where the key word occurs,

and then listen online to that segment (<http://sunspot.dstc.edu.au:8890/oral-history/index.html>).

The Library, at the same time, was considering how to extend its initial testing of software and early trials of audio digitization, which had involved material held in the University Archives. The DSTC project, while highly successful in demonstrating the potential of the *Meggie* Software, had only digitized a sample of the *From Lunchroom to Boardroom* collection of recordings. After considering the historical value of the collection, the need for it to be preserved in a digital format, plus the ease of access that could be provided via the DSTC developed web interface, the decision was made in October 2000 to put together a project to digitize the entire *Lunchroom* collection of audio recordings. The process would incorporate the *Meggie* indexing process and ultimately provide access via the Library's web server.

## **The Process**

### **1. Digitization of the recordings**

Before any digitization project can begin, the fundamental question must be asked – which digital format will be the most appropriate? Quality, ease of use, long term access to playback software and expense must all be considered. For the *Lunchroom to Boardroom* project the digital format was already determined. In order to make use of the *Meggie* software, MP3 had to be used. Although the format was prescribed, MP3 has many advantages apart from its compatibility with *Meggie*. It is an open format and is not tied, unlike formats such as *RealAudio*, to a specific software company. Consequently, there is a wide choice of encoding, editing and playback software available at low prices and often for free. Further, all of the major players (e.g. *Real*, *QuickTime* and *Windows*) will playback MP3, releasing any potential user from the burden of downloading a particular player in order to use the resource. Technically, MP3 stands up well next to the proprietary formats. It is highly compressed, it can be streamed on demand with the use of a simple metafile, and has the potential for CD quality fidelity.

An important decision, which had to be made early, was to choose a standard bitrate for all of the recordings. As the delivery method was to be simple on demand streaming, the decision was made to digitize at the constant bitrate of 32kbps. This was seen as a good compromise between quality and ease of access for clients using low-end technology.

The software used for encoding the MP3s was *MusicMatch Jukebox 4.30.0058*. *MusicMatch* has the distinct advantage over most encoders of being able to encode analogue recordings directly to MP3 without going through the separate step of creating a separate *wav format file*. As most of the recordings being digitized were 30 minutes long this saved an enormous amount of time and therefore expense.

The basic hardware used was a *Digital Pentium 2* PC with sound card, a *Yamaha KX-200 stereo cassette deck*, and 96MB of server space.

## **2. Digitization of the transcripts**

In order to link the MP3 recordings to the transcripts, the *Meggie* software required that the transcripts be in a plain text format. This was done with a scanner and standard OCR software.

## **3. The Indexing Process**

The *Meggie* indexing process creates data at a number of levels. Firstly, there is *Dublin Core* metadata entered to describe the overall collection, as well as each individual interview and recording. Information, including the title, subject, creator, description and recording sampling rate, is entered into the database. The recording is then segmented and keywords are assigned to each segment. (Hunter and James ) This was a point in the process where a crucial decision had to be made which would influence effective searching of the database. The question was which keywords would provide the best search results. Should the key words be taken from a standard thesaurus or simply from the text itself? *Meggie* automatically creates an index of the text of the transcript for individual recording segments, so a second index purely taken from the text would be redundant. *The APAIS thesaurus: Australian Public Affairs Information Service* (National Library of Australia) was the obvious choice for a set of standard subject terms given the Australian nature of the collection. It was also decided to augment the *APAIS* terms with personal and place names.

The physical method of creating the data using the *Meggie* process could not have been simpler. Templates were available to enter metadata at a collection, interview and recording level. Following this, the *Meggie* editor allowed the text transcripts to be broken into segments and each of these segments could then be associated with the key words and the relevant part of the MP3 recording. This is simply achieved by the librarian doing the indexing while listening to the recording, and with the text of the transcript in front of them on the computer screen. As the recording plays, she/he marks the transcript with the times each segment occurs within the recording. The end result was a *Microsoft Access 2000* database containing the metadata, the keyword index, and the transcript index and timings. The database enabled the MP3 audio recordings to be aligned with individual transcript segments.

## **4. Providing Web Access**

The database created as a result of the indexing process was transferred to the library's web server to allow researchers to search and playback the recordings. While the Library had adapted the web interface, the Java code necessary to allow users to interrogate the database online was provided exclusively by the DSTC Pty. Ltd. The next step was to transfer the original data in *Microsoft Access* format to *Oracle* to ensure successful interaction with this interface. Once this was achieved, all that was left to do was to confirm that MIME Types ( i.e. audio/x-mpeg .mp3, audio/x-mpegurl .m3u) were available on the server to facilitate the on-demand streaming and playback of the MP3 recordings.

### The End Result:

<http://media.library.uq.edu.au:8080/lunchroom/index.html>

The end result of this project is a unique resource which allows the researcher unlimited access to fragile historical recordings without endangering the original tapes. The database enables researchers to search for and play back individual segments of the recordings which fit their specific criteria.

Researchers can search multiple terms and apply Boolean logic via the *match all the words* and *match any word* options. The search can also be limited to just the keywords (APAIS terms) or the entire transcript index can be searched. The search results give the interview and recording details, a small section of the relevant transcript segment, as well as a link to the entire transcript segment. The audio playback options play just the audio associated with the segment or the whole recording. Three playback options are provided: a generic download, an option which invokes the *Real Player*, and an option which invokes the *Windows Media Player*.



Above: The *Lunchroom* search page.



Above: Search results.

## A Last Word

The *From Lunchroom to Boardroom* project highlights the potential of the MP3 digital audio format to enable digitization of oral history recordings, and the capability of the Meggie indexing software to significantly enhance searching of web-based audio resources. This paper would not be complete without pointing out the labour intensive nature of digitization projects such as this, and the crucial role the traditional skills of the librarian have to play. The bulk of the expense for this project was not technology, but labour. Forty 30minute MP3 recordings had to be created via a real time process. Sixteen transcripts had to be scanned, three of which were created from scratch. Each recording had to go through the indexing process which worked out to be just over an hour per recording for a skilled *Meggie* operator. This added up to approximately 120 hours work, not including time spent on co-ordination, web design and loading the database on to the server. For resources which support the research strengths of the university, the investment is worthwhile. Greater access to the collections has been achieved.

It may be for some collections, that the strategy to digitize but not index is the most appropriate. This is an alternative for those who find themselves the custodians of magnetic tape oral history, but short of financial resources. Software including *MusicMatch* can be downloaded free, and will run on an average PC with a sound card. On-demand streaming of MP3 recordings is as simple as copying the files to a web server, adding one MIME Type and, writing a simple metafile for each recording. The

purchase of Scott Hacker's *MP3 the definitive guide* will provide all the guidance the novice should need. Of course the MP3 option is just one of many.

Having said this, the usefulness of large collections is greatly enhanced if the researcher is able to search, find and access exactly what they are looking for. The Library of Congress' *American Memory* site (<http://memory.loc.gov/ammem/ammemhome.html>) is an outstanding example of what can be achieved when the resources are available. New technologies and software are enabling new approaches to accessing and preserving valuable audio collections. At the same time, quality indexing is the real magic which makes the *From Lunchroom to Boardroom* project work. The advantage of being able to go instantly to the exact place in a recording, which contains the information the researcher is searching for, cannot be understated. The Meggie indexing software made this project possible, but without the patient and thoughtful work of librarians choosing the best possible index terms, the power of the technology would have come to nothing.

## **Bibliography:**

- Cloonan, Michele Valerie. "W(H)ither Preservation?(1)." Library Quarterly 71.2 (2001): 231 - 39.
- Collie, Therese, et al. Oral History. From lunchroom to boardroom : records of oral history project, Women in the Labor movement, 1930-1970, Brisbane.
- Hacker, Scot. Mp3 : The Definitive Guide. Sebastopol: O'Reilly, 2000.
- Hunter, Jane. Maenad - Multimedia Metadata Project. 1999. Web Page. Available: <http://www.dstc.edu.au/RDU/maenad.html>. 1 July 2001.
- Hunter, Jane, and Darren James. "The Application of an Event-Aware Metadata Model to an Online Oral History Archive." Research and Advanced Technology for Digital Libraries: 4th European Conference, ECDL 2000. Eds. J. Borbinha and T. Baker. Lisbon: Springer, 2000. 291 - 304.
- National Library of Australia. Apais Thesaurus : A List of Subject Terms Used in Apais : Australian Public Affairs Information Service. 7th ed. Canberra: National Library of Australia, 2000.