

## The Oral History Records Rescue Group (OHRRG) Digitisation Project at the State Library of Western Australia

### Pat Beament

Preservation & Maintenance  
State Library of Western Australia  
Perth, Western Australia  
E-mail: [pat.beament@slwa.wa.gov.au](mailto:pat.beament@slwa.wa.gov.au)

### Lee Blackford

Preservation & Maintenance  
State Library of Western Australia  
Perth, Western Australia  
E-mail: [lee.blackford@slwa.wa.gov.au](mailto:lee.blackford@slwa.wa.gov.au)



Copyright © 2013 by **Pat Beament and Lee Blackford**. This work is made available under the terms of the Creative Commons Attribution 3.0 Unported License:

<http://creativecommons.org/licenses/by/3.0/>

---

### Abstract:

*Digitising Oral History at the State Library of Western Australia: the Oral History Records Rescue Group (OHRRG) Project - In-house digitisation project of analogue audio cassette tape collection - Providing digital preservation and access: collaboration, building the structure, innovative solutions, realities, lessons learnt, and the future.*

*The State Library of Western Australia's (SLWA) Oral History Collection holds over 13,000 hours of analogue audio cassette tape, comprising over 6,000 interviews. The collection was established in 1961, with the earliest date of birth of a person interviewed being 1871 (remember Western Australia was only established as a colony in 1829). To achieve the Library's Strategic Direction "to preserve and make available our Western Australian Heritage Collections to the community", the OHRRG project was formed to secure funding from Western Australia's Lotterywest which uses funds from running lotteries to support community projects.*

*OHRRG is a consortium of various community organisations and individuals who are passionate about the preservation of oral history records.*

*This paper will explain the background to the OHRRG Project for the digitisation of the State Library of Western Australia's oral history audio collection and to fulfil its obligation to preserve 'at risk' and 'in-demand' material. The goals and strategies of the project included:*

- *cooperation and collaboration with the stakeholders;*
- *learning from other libraries' experiences in developing in-house operations;*
- *community involvement;*
- *setting up the decision-making processes required to manage an in-house project;*

- *targeting the funding proposal;*
- *developing the necessary internal skills;*
- *building the infrastructure including sound studios and equipment;*
- *acquiring staff expertise;*
- *creating and integrating new workflows;*
- *finding innovative ways of using equipment to improve productivity; and*
- *developing a policy for 'Original Materials Collection Copyright and Access'.*

**Keywords:** Digitisation, preservation, oral history, audio, heritage.

---

## **Introduction**

The State Library of Western Australia's Oral History Collection, held in the J S Battye Library of West Australian History, was established in 1961 and is the largest in Australia outside the National Library of Australia. The collection covers every aspect of family and community life as recalled by a state population who are either Western Australians by birth or migration. Interviewees include politicians, entrepreneurs, Indigenous people and leaders, activists, artists, writers and ordinary people from many geographical areas or employment groups. The collection also records many of Western Australia's Indigenous languages.

Recordings are held on a number of different formats such as microcassettes, reel to reel tapes, MiniDisk, DAT, CD's and DVD, but the bulk of the collection (93 per cent) is held on cassette tape. It is well established that magnetic tapes are prone to physical damage and chemical deterioration, as well as being subject to format obsolescence. Additionally, the preservation of magnetic tape-based formats faces the challenge of requiring tools and equipment for repairs, cleaning and playback that manufacturers no longer support, consequently, sourcing spare parts and servicing this equipment has become increasingly difficult.

## **Governance and Funding**

The State Library recognised the need to take action to preserve its oral history collection through a digitisation process. Initial discussions were held in 2002 with the Friends of Battye Library Inc., an active support group, to seek their assistance to preserve at risk and in-demand Western Australian heritage materials, and make them available to the community.

In 2003, a consortium of local historical associations was formed, known as the Historical Records Rescue Consortium (HRRC), to seek Lotterywest funding. Lotterywest is the only State Government-run lottery agency in Australia, and one of the few in the world with a community grants program where up to two per cent of the turnover from Western Australia's lotto revenue must be channelled into the arts.

The initial grant application was for \$6 million for five separate projects including oral history. Lotterywest approved funding of \$3 million (the largest grant ever) for three projects, which did not include the digitisation of oral history. At the time, Lotterywest staff acknowledged the crucial importance of the oral history collection, and agreed to consider further contributions subject to evidence that their preservation was a priority for relevant stakeholders.

The State Library actively looked at other ways to secure funding for the preservation of oral history through government support in 2008 as a risk management solution, but was not successful.

Following the first successful HRRC program, in June 2007 the consortium and the State Library took the following steps to prepare the next application to Lotterywest for the digitisation of the oral history cassette tapes.

- Community consultation and participation via consultants and focus groups, a survey, a questionnaire via the State Library's website, letters of support and telephone interviews.
- Developing a Memorandum of Understanding between the Friends of Battye Library, the Oral History Association and the State Library of Western Australia.
- The investigation of various options for equipment capacity and the timeframe for the project.
- Organising SLWA in-kind contributions – sound studios, equipment, infrastructure and staff time.
- Deciding the percentage of the collection to be digitised.
- Identification of key stakeholders for support, focusing on regional and ethnic communities.
- Estimating the total cost of the project.

Rather than outsourcing the project, the State Library decided to set up an in-house operation so that staff skills and expertise could be developed. This investment in the future will enable further digitisation of collections to preserve and make accessible heritage material as part of the Library's Strategic Directions.

The Oral History Records Rescue Group (OHRRG) was formed, and through the Friends of Battye Library, submitted an additional application to Lotterywest to digitise 7,500 hours (about half the collection) and make available 200 voices online to the community. In June 2009, a grant for \$849,000 for this two year project was approved.

The State Library provided \$360,000 for two sound studios and a machine room through capital funding, with the additional \$283,000 for the sound equipment funded primarily through a local bequest.

As the State Library did not have expertise in this field, staff contacted and visited other State and National institutions involved in digitising oral histories. This process was very important to accumulate information, evaluate and experience various workflows, and to discover the differences of opinion on ways of working when there were financial and time constraints.

Following the initial discussion with stakeholders it took seven years (from 2002 to 2009) to acquire the necessary funding to preserve the collection of Western Australian oral history sound cassette tapes.

## **Implementation**

To undertake this project the following internal staff resources were required:

- Project Steering Group to oversee the project.
- Manager, Preservation & Maintenance to manage the location, design of the sound studios, costing, recruitment and equipment.

- Manager, Facilities Management to oversee the building works and procurement activity.
- Project Manager, OHRRG Project to manage the digitisation process.
- Director, Collection Services as project sponsor.
- Digital Services (the Library's Information Technology section) to provide the technical support for the specification and installation of cabling, and network requirements.

In addition, technical advice on the design and standards for the construction of the sound studios, and the selection of the specialist audio equipment, was received from Kevin Bradley, Director, Sound Preservation at the National Library of Australia (NLA) and Vice Chair of the International Association of Sound and Audiovisual Archives Technical Committee.

## **Methodology**

### Phase 1: Selection of interviews to be preserved

To meet the initial target of 7,500 hours of tape to be digitally preserved and captured, criteria were developed for the selection of interviews – initially the most iconic Western Australians:

- interviews created as part of a themed project/series,
- interviewees born up to 1920 (later revised to 1950),
- Indigenous interviewees and projects, and
- interviews without transcripts.

In 2012, the project was reviewed because the initial outcome of digitising 7,500 hours was achieved earlier than estimated, and there were remaining funds to be utilised. The outcome was increased to 12,000 hours digitised.

The alternative approach of commencing digitising from the first tape recorded was considered, but at the time there was no certainty the whole collection identified in the project could be digitised, so a prioritisation model was preferred. With the certainty of hindsight that sees the whole collection of cassette tapes digitised, the latter method would have been more cost effective and efficient.

### Phase 2: Purchase professional analogue replay equipment

During the initial consultation phase, it was soon realised that there was an urgent need to find suitable analogue professional audio replay equipment as cassette replay equipment was no longer manufactured, and it was difficult to find high quality equipment in Australia to meet the required standards. A company in Europe which had a limited number of new cassette players, Tascam 322, was located, but they did not meet the required specifications. Fortunately, a second-hand professional Denon 790R and a Tascam 122 MK11 cassette player were able to be purchased at the start of the project. Additional purchases of Tascam 122 MK 111 professional cassette players were made throughout the project to ensure a supply of spare parts and to maintain optimal operations while regular services are carried out.

Lessons learnt:

- Start early and continue to acquire professional equipment and parts as they are difficult to acquire.

- Source equipment worldwide e.g. eBay, audio suppliers and other private and government institutions with in-house audio operations.
- Find a reliable service provider who knows analogue equipment well.

### Phase 3: Construction of sound studios - location, design and costing

While investigating the construction of sound studios in Australia it was discovered that often shortcuts made, due to financial constraints, resulted in sound studios requiring regular upgrades; unfortunately sometimes the funding for upgrades was not available.

The State Library's aim was to build sound studios that would not require additional funding in future years; they were built to International and Australian standards, and were tested to achieve the following results:

- Background Noise Criterion (NC) within the range from NC15 to NC20 curve;
- Room Reverberation time of 0.3 to 0.4 seconds;
- Confidential Speech Privacy Rating by the outer shell Weighted Difference Level (Dw) rating of 50-55 decibel (db).

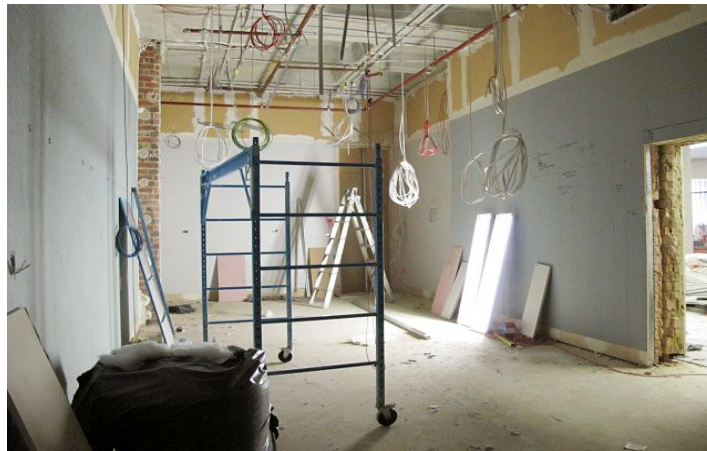


Fig. 1 During Construction

### **Why use a sound studio for digitisation?**

A sound studio is designed to be a pristine listening environment, using professional studio speakers, sound proofing and acoustic treatment to make a quiet listening space and a flat sounding room. Having a flat or true sounding room allows the listener to hear the recordings exactly as they were made, and also reveals the fine nuances in the sound. Being able to listen with such precision helps to identify problems with the process itself (faulty playback equipment) and also establish if any digital restoration work needs to be carried out. To achieve a flat sounding room, sound is adjusted by placing acoustic panels on the walls and ceiling to absorb certain frequencies of sound.

The need to construct a sound studio for digitisation is required because it ensures higher productivity and enables sound preservation best practices to be met.



Fig. 2 Acoustically designed studio

Planning for the construction of the sound studios commenced in February 2009.

- Various potential locations were identified within the State Library with the final location based on the cost of construction and ensuring that permanent relocation of other staff was not required.
- An acoustic consultant was engaged to provide architectural, mechanical, acoustics, commissioning, tender review, testing and reporting aspects to meet the required standards.
- An architectural consultant was engaged, in conjunction with mechanical, engineering, and a quantity surveyor to provide design plans and costing. The design plans also required acoustic consultant approval.
- An extensive procurement process was undertaken to meet government requirements.

Other workflow issues considered in the design stage included:

- Minimising workflow inefficiencies due to the location of the project manager and material to be digitised on one floor and the sound studios on another.
- Incorporating the space required for supporting the efficient handling of materials in the final design. While the studios supported the handling of archival material, only a limited amount of material was supplied at one time in order to ensure that the tapes were not out of preservation environmental conditions for any great length of time.

The construction of the sound studios was completed in October 2010, twenty months later.

Lessons learnt:

- Ensure a specialist audio engineer is engaged early in the project to provide expert advice on acoustic design.
- The skills and experience required to design a sound studio are quite different than those required for general library design. Even experienced library architects may not have the required skills.
- Check the building construction program regularly to ensure all details are verified and building work is on track.

- If construction occurs near an area where staff are working, there needs to be good planning and communication to prevent disruptions due to noise and dust.
- Where sound is involved, the acoustic properties of the entire area, including the services in the ceiling, also need to be considered; otherwise this may result in additional costs. Consider the sound of running water, air conditioning and servers.
- A communication plan should be developed to ensure the project is well understood across the whole organisation.

#### Phase 4: Selection, purchase, installation of digital equipment and training

Initial investigation of the digital audio system commenced in 2007.

- A tender process was developed, and in March 2009 tender submissions were received.
- A staff member from the National Library of Australia was part of the tender selection panel as a technical adviser.
- The State Library's Digital Services (Information Technology) Team were consulted during the tender process to ensure that the Library's digital management system and the new equipment were compatible.
- The tender was awarded to Syncrotech and a Cube-Tec, Quadriga and Dobbin Audio Rendering Farm system was purchased.
- Due to delays with the construction of the sound studios, the purchase of the equipment from Europe was postponed to align with the completion of the sound studios to ensure the warranty time commenced when the equipment was installed.
- The equipment was sent to the supplier in Sydney (some 4,000 kilometres from Perth) for further configuration before installation at the library.
- The system was installed in December 2010 and three days staff training was provided as part of the tender requirements.

Lessons learnt:

- It is important to use generic audio terminology in the tender document.
- Plan carefully for the availability of the technical advisor during the tender assessment phase.

#### Phase 5: Recruitment of project personnel

The initial staff resource requirements for the project were identified prior to the funding application in order to establish cost estimates. Following a seven-month process, seven staff were recruited comprising the Project Manager, an Administrative Assistant, a Librarian, all employed part time, a Senior Audio Coordinator and three Audio Technicians employed full time. Technical staff worked in shifts from 7am to 11pm Monday to Friday in the two audio stations.

Obtaining staff with the specialised skills required for this project proved difficult as knowledge of both analogue and digital systems was required. Only one staff member had most of the skills and knowledge required of the unique audio system. This resulted in a considerable training program for other staff on the project.

## Phase 6: Copyright permission

An outcome of the project was to make available to the community 200 voices online via the State Library's catalogue. These 200 voices were made up of approximately 130 individual interviews and 70 interviews from 70 distinct projects.

Obtaining permissions for placing interviews online was intensive and complex. The documentation for each interview had to be checked for any pre-existing agreements and restrictions, and there was a great deal of variation.

Some permissions existed which ceded copyright to the State Library; in others, copyright still remained with the individual or organisation. There were some agreements which allowed only certain use, or stipulated that written permission had to be sought before access could be granted. In some cases there was no documentation at all.

One of the difficulties was interpretation, as most deeds were made before the digital era, and while permission was given for private research, publication or broadcast – digital online access was not a consideration in this pre-digital age.

Interviews were collected over many decades, with permission agreements often involving organisations that no longer existed or which had amalgamated with other groups. Many interviewees and interviewers had died or moved, and family members had to be traced, and permissions sought. For a significant proportion of the interviews, pursuing the appropriate people involved multiple communications over months to obtain permission. In some cases especial care was needed if the interviewee was a prominent figure in the community or with different cultural mores.

Having listed the difficulties in the permission process, the reality was that there was an overwhelmingly positive response by those contacted. Individuals felt honoured to be chosen and family members were honoured that their loved ones were chosen. Oral History Societies, interviewers, interviewees and project managers seemed to view the process as recognition of all their hard work.

The process generated a lot of goodwill, built up relationships and also other benefits and enquiries outside the project brief such as possible donations to the State Library, queries about rights agreements/copyright and providing copies of transcripts.

### Lessons learnt:

- While the State Library has statutory permission to digitise and preserve the cassettes under the Australian Copyright Act, obtaining permissions to allow interviews to be made accessible online was lengthy and time-consuming.
- Communication with individuals and organisations generated considerable work that was not in the brief and needed to be resourced.
- Future oral history projects, should be designed to include time for discussion and need to obtain wide-ranging permissions from individuals (including projects with multiple interviews) to make obtaining permissions for the digitisation process at a later date easier.
- Maintaining all records and documentation regarding copyright/deeds/rights agreements so that it can be easily retrieved and ensure any possible future digitisation is addressed, is also key.



This project was the catalyst for the State Library to develop a policy on the handling of copyright of unique unpublished materials. The State Library's Original Material Collections Copyright and Access Policy was created from the work done by the OHRRG project based on the work undertaken verifying interview copyright status.

### Phase 7: Digitisation

To begin, tapes were digitised one at a time in real time which allowed the technicians to monitor and listen for possible problems with the tape machines, adjust azimuth and set recording levels.

After training and working with the system for six months, staff familiarised themselves with the Quadriga audio ingest system to the extent that a decision was made to digitise two tapes simultaneously. Changes to the workflow gave the technicians the confidence to handle the larger workload and increased output by approximately 40 per cent. The process for monitoring a double ingest was exactly the same as single ingest and the technician could toggle between the recordings using the Quadriga software and continue checking the sound.

During this period the Library's Digital Services Team created an application called the Reformatting Plan, which enabled the compilation of bibliographical data for the tapes to be digitised and also kept a record of what had been digitised. The application is web based and can be accessed from the two sound studios and elsewhere in the library helping to cross reference data and check digital files.

The Reformatting Plan application consolidates information such as the catalogue number, tape number, interviewee and interviewer into an Extensible Markup Language (.xml) file which is imported into the Quadriga system, tape preservation digital recording software and incorporates this metadata into the audio files Broadcast Wave File (BWF) header. This allows the capture of maximum metadata from the library's catalogue system for future migration.

The professional Tascam 122 Mk111 tape machines (used to play back the tapes) were modified to adjust the azimuth and an extra play back head, including circuitry, was installed.

The azimuth adjustment (Fig 3) allowed re-alignment of the playback head to suit how the tape was originally recorded and to obtain optimal sound. The issue of constantly adjusting the azimuth Phillips head screw will eventually cause burring, and removing this part, once severely damaged, is difficult. Also, the original position of the screw was difficult for technicians to align for adjustment. The modification made was to replace the adjustment screw with a bolt permanently attaching it to the tape machine using a small bracket.

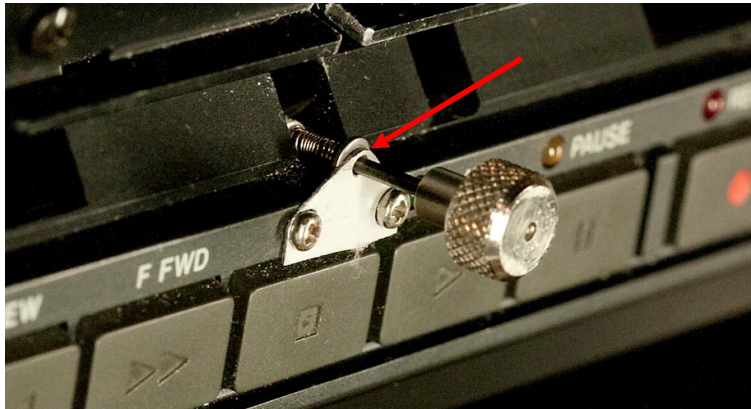


Fig. 3 Azimuth adjustment modification

The extra playback head (Fig 4) allowed the monitoring of the second side of a tape while recording the first side. Monitoring the second side of the tape simultaneously was very efficient and allowed the technician to check if the side was blank or if a voice was present, and it identified at any stage throughout the tape, exactly where the interview ceased.

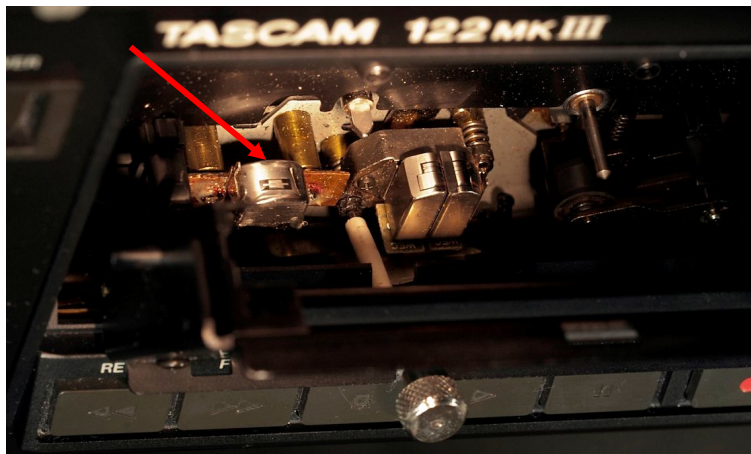


Fig. 4 Extra playback head

#### Lessons learnt

- Full support is required from the information technology section.
- It is important to employ people who have solid computer skills.

#### Preservation Guidelines

For this project, a set of three digital objects were produced for preservation and access:

- Preservation master- Broadcast Wave File (BWF), 24 bit rate, 48 kilohertz (kHz).
- Co-Master- WAVE file, 24 bit rate, 48 kHz.
- MPEG 1-Layer 3 (MP3) –web access encoded 192 kilobits per second (kb/sec).

The Co-Master was enhanced to remove background hiss making the sound cleaner and clearer. Loudness normalisation was applied to keep the online audio at a consistent level so that the listener does not have to alter the volume levels from recording to recording. The MP3 was created from the Co-Master and has the same enhancements.

## **Digital Storage**

Before the Project commenced discussions were held on the amount of digital storage that would be required. As the project progressed this was regularly reviewed and the estimates increased. By the end of the project the final amount of digital storage used for 11,550 hours of digitised sound was 25 Terabytes (TB).

The State Library's storage system consists of over 400TB in both on-site and off-site storage. On-site storage is provided by a Storage Area Network (SAN) running Redundant Array of Independent Disc (RAID) 50 arrays with 10 Gigabytes (GB) Small Computer System Interface (SCSI) connectivity. The same setup is duplicated off-site to provide full redundancy and backup for all stored data. On-site storage is additionally replicated to an on-site device, using the Network Data Management Protocol (NDMP), which utilizes a 48 slot Tape Library using Linear Tape-Open, version five, (LTO5) technology. A snapshot of each data object is created twice daily and replicated to the off-site storage once daily. Data objects are also replicated on the NDMP on-site device once daily, and written to LTO5 tape every three months. These tapes are then stored in an additional off-site secure storage facility.

## **Oral History Workshops**

During the project, presentations were given to the Oral History Association (OHA) about the OHRRG project. It was evident that there was a need to train interviewers on how to record oral histories using digital technology to preservation best practices. The Library has conducted a two-part workshop with great success.

## **Future**

Following completion of the OHRRG project, the State Library is continuing to digitise the remaining audio cassette tapes, and other recordings held on different formats. These are now mainstreamed into normal reformatting operations. The State Library will continue to make available online the remaining digitised interviews produced during the project.

The State Library will assist other institutions and community based historical organisations with the preservation of their unique audio collections.

Oral history workshops to improve the technical capabilities of those recording oral histories will continue to be offered to the community. This will ensure that in the future the recorded voices of Western Australian people will be preserved at a high standard.

## **Conclusion**

This was a complex and unique project for the State Library. It produced a successful partnership between the Library and historical and heritage associations to achieve an incredible outcome, 11,550 hours of oral history interviews and 200 voices made available online to the community in just over two years. The Library gained state-of-the-art audio studios and staff gained invaluable knowledge and skills throughout the project which can be used for future work. The community has gained considerably by having access to the unique voices of Western Australians preserved in a format that can be accessed by future generations. Tremendous goodwill was created for the work the State Library does to preserve

and treasure Western Australians stories. We hope that this will allow future digitisation projects to be undertaken.

## **References**

*Guidelines on the production and Preservation of digital Audio Objects* (IASA-TC04, Second Edition 2009).

State Library of Western Australia. *Creating and Keeping your Digital Treasures a user guide* (December 2010) [http://www.slwa.wa.gov.au/digital\\_treasures](http://www.slwa.wa.gov.au/digital_treasures) Copyright: Creative Commons, Non Commercial share alike, <http://creativecommons.org/licenses/by-nc-sa/2.5/au/>