



Article: TIP: Collaboration, Learning, and a Positive Response to Disaster: Preparing a Collection of 16mm Film for Digitization

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COLLABORATION, LEARNING AND A POSITIVE RESPONSE TO DISASTER: PREPARING A COLLECTION OF 16MM FILM FOR DIGITIZATION

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Abstract

This paper discusses a collaborative project between the Centre for Cultural Materials Conservation at the University of Melbourne, Racing Victoria and the Australian Racing Museum. The project involved condition assessment and preparation of a collection of moving image footage for digitization, and was initiated in response to disaster recovery of the collection in the wake of severe storms in Melbourne in early 2010. A Knowledge Transfer Grant was secured through the University of Melbourne to enable Masters students to undertake this conservation work and learn through hands-on experience. The paper presents the project background, activities, outcomes and findings. Activities discussed include the initial site visit, re-defining the project, research and planning, and the collection survey and training. The benefits to students of the collaborative two-way learning in a 'real-world' context are highlighted.

Introduction

In early 2010, Melbourne experienced several severe weather events that caused widespread flooding. The ThoroughVision Thoroughbred Racing Channel Collection (TVN) was affected by flooding twice in as many months.

Service to the community is a key element of the University of Melbourne's "triple helix" model, of teaching, research and knowledge transfer. The University encourages collaborative activities through small grants and access to University resources. The Centre for Cultural Materials Conservation (CCMC) at the University embraces this approach and actively works with local community collections in various ways. As a result of preliminary discussion with TVN, the University provided funds through its Knowledge Transfer Grant program to support a conservation response. CCMC conservation students, worked with assistance from staff and several project partners to develop and deliver the project. The University of Melbourne Digitisation and Image Services department provided a dedicated, climate controlled lab space for the duration of the project.

TVN had previously undertaken a pilot project to digitize a selection of the 16mm films. The full roll out of the project was now a priority for TVN as it was unknown what condition the films were in.

This paper discusses the subsequent collaborative project, in which the 16mm film component of the collection was assessed and prepared for digitization.

Background Information

Each year in spring Melbourne holds a horse racing carnival, including a statewide public holiday for the Melbourne Cup race. This local interest in horse racing relates as much to the fashions off the field as the racing on the field.

ThoroughVision Proprietary Limited (TVN) is a private business, under the umbrella of Racing Victoria, which holds the rights to racing footage across Victoria. It holds footage of all the prestigious Melbourne and district horse races from the 1940s onward, including the Melbourne Cup, with extensive crowd shots and rare footage of racing icons. This archive holds various tape formats, as well as a collection of prints and film, and is a commercial working collection. It receives daily access requests and has a clear link to Melbourne's history and cultural identity. The 16mm film component of this collection is estimated at 4,000 items. Digitization had previously been considered mostly in terms of access to the collection, but in light of the disaster, TVN and the Racing Victoria Archive were keen for conservation advice and assistance, prior to embarking on further digitization.

Project Activities

Initial Site Visit

An initial site visit provided the opportunity to meet with the project partners and to start to build an understanding of the collection size, materials and the current condition of the collection. Photographs provided by TVN had shown boxes soaked with water, so there was anticipation of finding mold or other direct evidence of water damage.

All films were found housed in original canisters, and stored boxed and stacked on pallets. The pallet loads were dispersed around the warehouse space with a variety of other items.

A number of canisters were randomly selected for a preliminary examination in situ. The distinct smell of acetic acid associated with vinegar syndrome was observed from a number of canisters, however it was unknown whether this was due to natural ageing or related to humidity exposure due to recent events. It was not possible to access all of the pallets, however initial observations found no evidence of mold or water damage directly affecting the film. The quick action by TVN staff to relocate the material from water damaged areas of the store, was successful in protecting the film from direct water damage.

Re-defining the Project

In discussion with project partners, and having discovered that triage-style disaster recovery activities were unnecessary, it was decided the focus of the project would be collection identification, condition assessment and preparation of selected film for transport and

digitization. In particular, the project partners were keen for the film types to be identified and to know whether cellulose nitrate film stock was present in the 16mm film collection, and if there were conservation priorities for digitization.

The time-line was somewhat flexible, as the client understood that this was a student-learning project. Having not had previous experience with such a project, it was difficult for the student team to predict what would be possible to achieve with the available budget and resources.

It was decided that the first action required to satisfy the project goals was to survey the collection to understand the materials and condition, and to inform treatment and preventive conservation actions. Based on the survey findings and research, a document would be prepared providing advice on material, condition, and recommendations for care of the collection.

One pallet load of films, selected by the TVN Archive Supervisor, was used to pilot the project. These films ranged in date from 1951 to 1984, with the majority being from the 60s and 70s. This pallet load of films, while not a statistically relevant sample, did provide an indication of the condition and conservation tasks that would be required.

Research and Planning

Planning the required activities took considerable time and included material research, development of a survey template and ensuring that health and safety standards were met, such as having a well-ventilated workspace, access to PPE, and safe materials handling procedures.

The preliminary research model was based on the approach recommended in the literature and focussed on gathering data to assist in film identification, including materials, methods of manufacture, and distinctive markings (Ritzenthaler and Voght-O'Connor 2006; Lavedrine 2009; Shaynebrook 2010). Texts were consulted for non-invasive ways of identification such as edge markings, notch codes and deterioration features (National Park Service 1999; Lavedrine 2009).

Research was also undertaken to better understand the processes of deterioration and indicators of condition (Lavedrine 2003; Reilly 2009). General reading about survey methodology was also carried out. Bigourdan and Reilly's (2000) classification of film degradation in to the categories of 'physical, biological and chemical' was a helpful methodology when planning the survey template. The Australian National Film and Sound Archive film preservation handbook was a useful resource throughout the project (National Film and Sound Archive 2008).

Collection Survey and Training

In order to document the collection, a spreadsheet database was developed with fields for identifying information, description, canister condition, and film mechanical and chemical condition. A project Gmail account, where multiple people could easily access the spreadsheet at once, was created to streamline data entry. A-D strips were used to assess the extent of chemical deterioration (Image Permanence Institute 2010).

Surveying activities were undertaken in pairs, with one person handling the film and another entering data. The assessment identified two preservation concerns; there were numerous failing splices and many of the films were very loosely wound. Both of these needed to be addressed prior to transport and digitization.

At this point the collaborative nature of the project expanded. As the CCMC does not possess specialist film winding equipment, industry colleagues were contacted for assistance. The response was immediate and helpful. Film winding and splicing equipment was kindly lent to the project from Deluxe Melbourne, the National Film and Sound Archive (NFSA), and the Australian Centre for the Moving Image. The NFSA became interested in contributing more actively by lending purpose-built equipment and specialist training for the project. A day of training was subsequently provided by NFSA preservation specialist Mr Pat O'Connor, focussing on preservation winding and film splice repairs. All student project members attended, as well as staff from CCMC, the Australian Racing Museum, TVN Thoroughbred Racing Channel, and the University of Melbourne Digitisation and Image Services.

After the training, the project team were sufficiently confident and competent to complete the required repairs to the failed splices and re-wind the film in readiness for digital image capture.

To document the project a blog was developed with photos and moving images and can be accessed at: <http://www.reeltoreelconservation.blogspot.com/>

Outcomes and Findings

A project report and recommendations were provided to TVN. Some of the major recommendations are discussed below. All films surveyed were identified as cellulose acetate and there was minimal, if any, evidence of water damage from flooding.

Identification of the film base was a major goal of the project, as this information was requested by the collection caretaker and would have significant implications for recommendations for future care. The survey identified that all of the assessed films are on a cellulose acetate base. This finding is supported by the literature which confirms that 16mm film was not produced on a nitrate base (Reilly 1993, 21; Wilhelm and Brower 1993, 361). Staff from the NFSA further supported this finding (Pat O'Connor, pers. comm. 23 Nov 2010).

What was known of the storage history of these films indicated that they had been stored at room temperature. The films surveyed are still in useable condition, but are beginning to show evidence of autocatalytic deterioration. This is to be expected given their storage history, and correlates with the natural aging research that has been done in the field by the Image Permanence Institute (Reilly 1993). A few film reels exhibited slightly more advanced states of deterioration, and these were recommended as a high priority for digitization.

As good storage conditions can considerably lengthen the life span of these materials, cool or cold storage was recommended for the ongoing care of the original film (Bigourdan 2000). In

order to help identify problems early on and allow for adequate time to make sound decisions for collection care, it was recommended that all remaining films be assessed with A-D strips. Future monitoring was also recommended, the frequency of this monitoring depending on the future storage conditions of the collection.

Fading was not specifically assessed during the collection survey, however it was observed on many films during rewinding activities. It is known that fading of chromogenic material is unavoidable, occurs even in the dark and is expedited by high temperature and relative humidity. Considering that the selection of film assessed was almost entirely composed of chromogenic film, this was another reason to recommend cool storage. Digitization was recognised as a good strategy to preserve the image content.

Many of the films had failing splices, with brittle and discoloured tape coming away from the film, and a number had broken edge perforations. The results of the sample survey indicate that approximately 1 in 4 films in the collection have failing splices. Consequently, a recommendation was made that failing splices be repaired prior to digitization.

Anecdotal evidence has suggested that periodic rewinding is a good strategy to release acidic vapours from the film and canisters, and may therefore extend the lifespan of the film. For this reason it was recommended that a low tension wind be done on films after their digitization and transportation to the permanent storage location. A conservation wind, at 300g of hold back tension will result in less pressure inside the film pack by allowing for shrinkage of the film (Newnham and Garvie 2003). Unfortunately we didn't test for shrinkage of the film during the initial survey. It was recommended that, should any further surveying of the collection be undertaken, this would be a useful activity to provide further data on the state of chemical deterioration of the film.

A number of other recommendations were made relating to access, transportation, and housing. This included recommendations that each film reel be allocated a unique persistent identifier, such as a catalogue number, and that this be clearly labelled on the film canister exterior. Delaminating of original labels on film canisters was also noted and many were re-adhered during the survey. As the loss of these labels would result in loss of essential information, resealing of all labels was recommended before transportation for digitization.

Conclusion

Working closely with the Australian Racing Museum and TVN staff to understand collection needs and goals meant that a specific, albeit pilot, conservation project tailored to their requirements could be developed. The project also provided the opportunity to increase engagement between CCMC and industry partners. These relationships will continue to grow as dialogue and research continues, resulting in positive outcomes for the care of such significant collections.

It was initially envisioned that disaster recovery would form a major component of the project activities, however once work began it was clear that such steps would not be necessary. This

meant that there was an opportunity to refocus activities and to add further value to the overall project. An increased focus on condition assessment and preparation of an extended selection of films for digitization was possible, and greater attention could be paid to the development of realistic, practical recommendations for the future care of the collection.

The activities required for film conservation require a specific skill set and knowledge base. The National Film and Sound Archive engaged with the project to provide specialised training to help CCMC students develop these unique skills. As a result of the project, CCMC students acquired new skills through directed research, and hands-on learning and training in “real world” conservation activities.

The report and recommendations provided to TVN and the Australian Racing Museum has highlighted the preservation requirements of this particular collection, and the preservation needs of film collections in general. The project success has also resulted in TVN now planning an extended conservation project for the entire collection.

The TVN film archive of 20th century horse racing footage is highly significant to local cultural identity. As a result of this relatively modest conservation project the collection will have an extended life span, a safer transfer to digital content and will subsequently provide greater opportunities for public access and enjoyment.

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