Conservators and Digitisation: When We Conserve the Window, How Should We Preserve the View?

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Traditionally, the conservation field has been concerned with the material object. During the 20th century cultural institutions have accumulated still and moving photographic images, recorded sound and magnetic media along with other modern materials.

The need to conserve these media objects, manufactured primarily for what they can do, rather than what they are, has been challenging. The concerns have been to preserve the original often unstable medium, to maintain the associated retrieval equipment and most significantly, to use the most appropriate reproduction method for the content. Over the past few decades our profession has engaged with these conservation challenges with varying success. Strategies have focused on storage, physical conservation of the carrier and copying using commercial/broadcast solutions.

There is a fundamental difference between traditional cultural materials where the object is primary — and media that functions as an information carrier. The principal aim of conservation is to accurately and authentically reproduce and preserve the content of audiovisual and photographic records. In what ways can and does a conservator do this?

The digital world provides us with preservation opportunities, choices and dilemmas never before imagined. Digital copying and re-purposing of media allows wide ranging interpretations that may, or may not reflect the creators' intentions. In the future, without the ability or need to refer to original photographic materials or sound recordings, contemporary fashion may dictate the way these records are experienced. What is the role of the conservator? What solutions satisfy the conservation requirements of the original record?

For a profession that has always looked at the window, this paper invites you to take in the view – to be part of the decision making process, to preserve that view for posterity.

Introduction

My father was born in 1909. He learned to drive in a Model T Ford; as a teenager, he showed the rushes of the first Australian talkie film, Show Girls Luck; he was interested in technology and built valve radios but was never much interested in transistors. He lived to the mid-1990s and saw the establishment of the computer age from which he undoubtedly benefited, but largely ignored. In the past sixteen years, there has been a technological explosion that has matured, but continues to grow and change. My aim in this paper is to discuss and question the limitations of our traditional approach to conservation. I will give examples of established approaches to the preservation of cultural material that are valued for their content rather than their materiality. I want to discuss a prime conservation concern, respect for creator intent and authenticity in the digital domain. Finally, I highlight solutions provided by digital image capture and the resources available to us to embrace this *new* world.

Traditional Conservation Concerns

As conservators, we are trained to conserve the material object. Indeed, we work to the AICCM code of ethics and code of practice that is clearly framed around the concept of cultural material as a physical entity – any other interpretation is only implicit. Internationally, other conservation groups such as The American Institute for Conservation (AIC) the

International Council of Museums (ICOM) and the UK Institute for Conservation (ICON) frame materials conservation around the traditional notion of the materiality of cultural property. In my reading, the one group that explicitly addresses immateriality is the Canadian Association for Conservation of Cultural Property and of the Canadian Association of Professional Conservators (CAC-ACCR). Logically, it is noted under "Reformatting" in their *Guidance for Practice:*

> *Reformatting…is an appropriate intervention for cultural property which is valued exclusively for its information content and where, despite current conservation practices, future retrieval of this information may not be possible.*

I believe that a profession we need to fully engage with the conservation of cultural heritage that is important for the information that it contains, rather than its value as an artefact. We live in a time of convergence. In technological terms convergence is the coming together of technologies – audiovisual, internet – mediated by digitisation. For conservators in cultural institutions and private practice, convergence in a practical sense can be seen as the merging of professional skills to preserve intangible records in the digital domain. We now commonly work with imaging specialists who are responsible for the workflow from digital image capture to colour managed image and print production. We work with audiovisual specialists who preserve our audio, film and video heritage using traditional and digital processes. Our professional and technical specialisations are moving closer together. I believe that as conservators we should embrace this and take a lead to ensure that our traditional concerns for the long-term integrity of cultural materials is at the forefront of digital preservation considerations.

How do we ensure long-term authenticity of the digital form of these cultural objects, that are significant as information carriers, but not for their material form?

IMMATERIALITY AND DIGITAL HERITAGE

Immateriality is not new in the cultural sphere. It has long been a familiar concept in the digital preservation realm. In 2002, the National Archives of Australia produced a green paper titled *An Approach to the Preservation of Digital Records.*

In this paper the fundamental difference and experience between traditional paper records and their digital counterpart are discussed. The most obvious difference is that of the direct experience of a paper record, and the mediated experience of a digital record. Of course, by mediated I mean the necessary use of technology to interpret and display a digital record. Pointedly:

> *… the experience of the object only lasts as long as the technology and data interact. As a result, each viewing of a record is a new 'original copy' of itself … The importance placed on originality, in relation to paper records, does not apply to digital records, where many users can [simultaneously] experience equivalent copies*
> (National Archives of Australia 2002).

A key concept in this paper (now remember we are talking about the digital domain) is that of the *performance model* that breaks down the concept of a digital record into components that help explain their fundamental nature.

There is the *source* of a record, which is a fixed message that interacts with technology. This message provides the unique meaning, which is meaningless until combined with the *process*, the technology required to render it as its creator intended. When the source is combined with the process, a performance is created and it is this performance that provides meaning to a researcher. When the combination of source and process ends, so does its performance, only to be created anew the next time the source and process are combined.

A point to remember (and of concern to us as conservators) is that a source may be mediated by many different software platforms, and each

combination of source and specific process platform may produce a slightly different performance.

This is an issue with migration of records to a new software platform. Emulation is a different approach, where the original look of the record is maintained by using different means.

In 2003 UNESCO published its *Charter on the Preservation of Digital Heritage* that addressed all of the current key issues— current issues that we still face today when considering digitisation. In the preamble it states that there is:

> **Understanding** that this digital heritage is at risk of being lost and that its preservation for the benefit of present and future generations is an urgent issue of worldwide concern,
>
> *Article 1 – Scope*
>
> The digital heritage consists of unique resources of human knowledge and expression...Digital materials...are frequently ephemeral, and require purposeful production, maintenance and management to be retained.
>
> *Article 3 – The threat of loss*
>
> The world's digital heritage is at risk of being lost to posterity. Contributing factors include the rapid obsolescence of the hardware and software which brings it to life, uncertainties about resources, responsibility and methods for maintenance and preservation, and the lack of supportive legislation...
>
> *Article 5 – Digital continuity*
>
> Continuity of the digital heritage is fundamental. To preserve digital heritage, measures will need to be taken throughout the digital information life cycle, from creation to access. Long-term preservation of digital heritage begins with the design of reliable systems and procedures which will produce authentic and stable digital objects.
>
> *Article 9 – Preserving cultural heritage*
>
> The digital heritage is inherently unlimited by time, geography, culture or format. It is culture-specific, but potentially accessible to every person in the world. Minorities may speak to majorities, the individual to a global audience...
> (UNESCO 2003).

The National Library of Australia prepared a "How-to" guide – *Guidelines for the Preservation of Digital Heritage* – as a companion to the UNESCO Charter. It provides practical information and principles on the management of digital heritage material through its lifecycle (National Library of Australia 2003).

CONSIDERING THE CREATOR INTENTION AND THE ORIGINAL VIEWING EXPERIENCE

A major challenge for digitisation is to ensure that the final viewed image authentically reproduces the creators' intent. This is a particular problem with photographic negatives. Commonly, photographers would manipulate images and even superimpose negatives to produce a particular effect. Where a final print exists, it can be a guide to the aesthetic decisions made by the creator. However, if there is no detailed information recorded by the creator, we are only making partially informed judgements. Fortunately, we are presented with a solution if images are digitised to capture all the tonal qualities and resolution of the original image. A high-resolution image gives the future flexibility to replicate the creators' intent, when it is known.

The concerns at capturing the creators' intent in photographic images are mirrored in the conservation demand to maintain the original viewing experience in cultural materials based on audiovisual technology.

In 2005, DOCAM (Documentation and Conservation of the Media Arts Heritage) was established to examine threats to the preservation of media arts and to come up with solutions for artists, museum professionals and others to better document and preserve this heritage. Richard Gagnier who directed the preparation of a preservation guide to technology for DOCAM was in Australia earlier this year. He spoke to forums in Queensland, Sydney and Adelaide about the preservation of technology based art works. Among other issues - he emphasised the crucial nature of

documentation and its link to facilitating the original viewer experience. He also outlined strategies for preserving the authenticity of the *performance* of technology-based art.

DIGITAL IMAGING STANDARDS

An analogue photographic negative contains much more information that the photographic print made from it. Potentially, photographic film materials can have very high resolving powers that would require digitisation to a high resolution to take full advantage of their technical capability. In practice, mechanical limitations of cameras and the lenses and variations in chemical development compromise the theoretical performance of the film. The resolution of processed photographic negatives will inevitably fall short of their potential. In his essay *Film Grain, Resolution and Fundamental Film Particles,* Tim Vitale analysed the resolution of particular film types and recommends scanning workflows for capture of the photographic images.

In the paper, *Digital Image File Formats – TIFF, JPEG, JPEG2000, RAW, DNG* (2007) Tim Vitale baldly states that *"Digital imaging is capable of recording spatial and color information well beyond the limits of film. Film-based imaging has thus been superceded, by newer technology."*

He (less controversially, for us photographic conservators) analyses a range of critical elements in the digital workflow in this paper. He describes the characteristics and differences between the common image file types. Additionally, he gives the bit depth requirements in image capture based on the tonal range of film and provides image resolution of *modern* film, and predictions on the resolution of historic film types.

The final InterPARES 2 Report, subtitled *Selecting Digital File Formats for long-term Preservation,* gives qualitative guidance on the formats that are best suited for long-term preservation. This report draws on the experience of *twenty institutions and four multi-institutional collaborative groups.* It contains extensive referencing to the institutional research papers to guide decision making for digital preservation.

SUMMARY

- As conservators of material culture, we have the position and authority to be involved in the conservation and preservation of these materials. It is our challenge to grow and change.

- The immaterial, intangible nature of these cultural *materials* is not necessarily an easy fit with our traditional training as conservators. However, we have a key role because of our established ethical concern for authenticity of presentation. We have a role because these *modern* materials exist in our collections in increasing numbers and we are the logical profession to take responsibility for them.

- The discourse has continued in allied fields for some time and it is time for us, as a profession, to engage fully in discussion and action.

- Reliable technical standards and workflows do exist for us to capture and save this heritage. Like much of materials conservation, we are faced with a forest with many trees. We can identify the trees and the path through them.

Now it is time for us to have our say and act.

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