

*Saving the Frame:
Methods and Ethical Considerations
in Video Art Preservation for Archives*

Introduction

This paper discusses the relatively new practice of video preservation in libraries and archives. It describes the Library of Congress' definition of video preservation; videotape physical properties and deterioration patterns; videotape format obsolescence; and current preservation techniques. Particular attention is focused on video art, one subgroup of video documentation in need of preservation. The Eternal Frame restoration project is presented as a case study to explore the unique characteristics of video art that makes its preservation especially difficult. These challenges are diverse storage situations, lack of funding, and the potential ethical conflicts between artists, preservation technicians and archivists. Sources for this paper include: preservation working group findings, video engineering technical papers, peer-reviewed journal articles, and the author's experience as a restoration technician on The Eternal Frame project.

What is Video Preservation?

Videotape technology has been in existence since 1956.¹ Yet only recently have libraries and archives begun to actively research and promote the preservation of this fragile medium. De Stefano points out that unlike their long history of preserving books,

¹ Jim Wheeler, "Videotape Preservation Handbook," *Association of Moving Image Archivists Online* [home page on-line]; available from <http://www.amianet.org/publication/resources/guidelines/WheelerVideo.pdf>; Internet; accessed 9 August 2005, 3.

libraries and archives have been slow in preserving videotape because they lack time, specialized technical knowledge, staff and money.² Murphy, in his 1997 Library of Congress Report on Television and Video Preservation, proposed a working definition of video preservation:

Video preservation, regardless of image source, is an archival system that ensures the survival in perpetuity of the program content according to the highest technical standards reasonably available. There are three major facets of video preservation: (1) safeguarding the recording under secure and favorable storage conditions, (2) providing for its proper restoration and periodic transfer to modern formats before the original or next generation copy is no longer technologically supportable, and (3) continuing protective maintenance of at least a master and a copy, physically separated in storage, preferably in different geographic locations.³

Facets 1 and 3 above are beyond the scope of this paper and have been covered in great detail in video engineering papers.⁴ Instead, this paper will explore Facet 2, the restoration and transfer of deteriorating videotape to modern formats, with additional emphasis on the ethical considerations in the preservation of video art using The Eternal Frame project as an example.

² Paula De Stefano, "Moving Image Preservation in Libraries," *Library Trends* 52 (Summer 2003): 121.

³ William T. Murphy, *Television and Video Preservation 1997: A Report on the Current State of American Television and Video Preservation: Report of the Librarian of Congress*, Washington, DC: Library of Congress (1997), available from *Library of Congress Online*, <http://www.loc.gov/film/tvstudy.html> (accessed 7 August 2005).

⁴ John W.C Van Bogart, *Magnetic Tape Storage and Handling: A Guide for Libraries and Archives*, Washington, DC: The Commission on Preservation and Access, (1995), available from *Council on Library and Information Resources Online*, <http://www.clir.org/pubs/reports/pub54/index.html> (accessed 9 August 2005); Wheeler, 1-28.

“...The survival in perpetuity of the program content...”

According to the Library of Congress working definition, the purpose of preserving videotape is to ensure that the informational content survives and is accessible. There are two main ways that this survival is in danger: physical deterioration of videotape and tape format obsolescence.

Physical Composition of Videotape

Van Bogart provides a detailed technical explanation of the physical properties of videotape.⁵ In simplified terms, videotape is comprised of three layers: the top coat; substrate; and back coat. The top coat, or magnetic layer, contains magnetic particles and lubricant reservoirs suspended in a polymer binder. The magnetic particles contain the video signal while the lubricant aids in tape transport in video playback decks. The binder adheres the top coat to the substrate, which provides support to the fragile top layer. The back coat reduces friction, static, and tape distortion. All three layers are potential areas of physical deterioration.

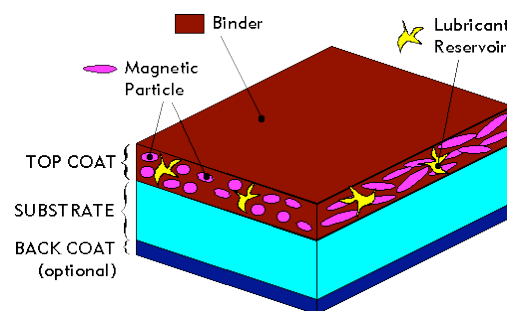


Fig. 1. Videotape layers⁶

⁵ Van Bogart.

⁶ Ibid.

Causes of Deterioration

Binder integrity and lubricant functionality can be compromised by hydrolysis, the reaction produced when videotape comes into contact with water molecules. Hydrolysis occurs in high humidity storage conditions and can lead to lubricant loss and the binder becoming gummy (sometimes called “sticky shed”). The tape can become stuck during playback or exhibit dropout (white lines or “snow”) on the image. As the substrate and back coat layers age, they are prone to distortion, which appears as mistracking when the video is played. Distortion of these layers is also caused by temperature and humidity fluctuations which cause the tape to expand and contract.⁷

Format Obsolescence

Archivists must also consider videotape format obsolescence when working to ensure accessibility of the content. In its 50-year history, videotape technology has progressed rapidly with certain formats and the associated machinery becoming out-of-date within the span of just a few years.⁸ It is impossible for archives to maintain working videotape decks and spare parts for all formats of videotape. The mandate to make the information accessible demands that content on obsolete formats be transferred to a current one. But because of the rapid advance of videotape technology, what is current today may be obsolete in a few years, so the content must continually be appraised and the transfer process repeated. Archivists do not recognize videotape as a permanent medium. Besides its ever-changing technology, videotape has other drawbacks: it is erasable; and

⁷ Ibid.

⁸ Wheeler, 22-23.

the technology is production driven.⁹ It is so impermanent that “next to nitrocellulose film, videotape is probably the next best medium for a society which did not wish to be reminded of its past.”¹⁰

Preservation Techniques

To ensure the survival of the content of deteriorating videotapes, three methods of preservation are employed: cleaning, transferring and restoration. Because these techniques require specific technical knowledge, archives that preserve their videotape collections usually do not perform these procedures in-house, instead they contract these services to other specialized agencies.¹¹

Cleaning

Dust, mold, smoke and tape debris that accumulate on videotape because of poor storage conditions or deterioration can all affect the proper playback of the tape. To ensure that the optimal video signal—the one closest to the original—is transferred, tapes must first be cleaned. There are a few procedures that are currently in use including baking, in which heat is applied to stabilize a deteriorating binder layer.¹² A common method of cleaning tapes is to pass it through a modified playback deck. Instead of play heads, the

⁹ Alan F. Lewis, “Current Video Preservation Practices: Promoting Awareness and Education,” in *Playback: A Preservation Primer for Video* (San Francisco: Bay Area Video Coalition, 1998), 48.

¹⁰ Murphy.

¹¹ Ibid.

¹² Wheeler, 9.

cleaning deck is equipped with cleaning cloths (Pellon), a sapphire burnisher, and a vacuum. Cycling the videotape through this device results in wiping dust particles, loosening debris, and capturing everything in the vacuum chamber. This process is popular because it does not expose the original videotape to chemical solvents or heat which can both accelerate deterioration.¹³

Transferring

After the videotape is cleaned, its content is transferred to a new, current-format tape. The terminology for this process has not been standardized. In the literature on video preservation, the transfer process has also been called migration,¹⁴ re-mastering,¹⁵ re-recording,¹⁶ and re-formatting.¹⁷ All these terms refer to the process of “converting the original to an updated format.”¹⁸

¹³ *Playback: Preserving Analog Video*, prod. Bay Area Video Coalition, 60 min., Bay Area Video Coalition, 2003, DVD.

¹⁴ Ibid.

¹⁵ Murphy.

¹⁶ Christopher Ann Paton, “Preservation Re-recording of Audio Recordings in Archives: Problems, Priorities, Technologies, and Recommendations,” *The American Archivist* 61 (Spring 1998): 188-219.

¹⁷ Wheeler, 11.

¹⁸ Murphy.

Restoration

While cleaning and transferring are considered essential procedures in the preservation process, restoration is generally seen as an added bonus. “Restoration implies a deliberate effort to make a complete and error-free copy from the best available original, minimizing all imperfections, while transferring the tape to a new copy.”¹⁹ It involves watching the program, usually frame by frame, and using current video technology to correct the damage caused by age or deterioration—the dropouts and other glitches evident on the image.²⁰ Restoration is painstaking, time-consuming work that requires specialized video production equipment. Most archives probably would not opt to fully restore a video piece unless it contained extremely rare and highly valuable cultural or historical information. In addition, restoration procedures increase the likelihood that the original piece is irrevocably changed or altered, an ethical concern that archivists see as tantamount, but one that is usually not given priority by the restoration technicians doing the work.

Video Art

All videotape is in danger of deteriorating, regardless of the subject matter contained on it, and all would benefit from preservation processes. Videotape collections of television broadcasts and news reports stored in network studios tend to have built-in systems of preservation. Many studios have archives on site and sufficient funding to at least store the tapes in stable environments, if not pursue an active cleaning and transferring

¹⁹ Ibid.

²⁰ *Playback: Preserving Analog Video.*

program.²¹ Video art, in contrast, is independent and underground. It serves as an alternative to the mainstream media produced by the major broadcasters. Early video art productions are unique records of a cultural and social scene that is rarely seen by a wide audience. Losing these records to deterioration would result in an incomplete historical record.

A Short History

In the late 1960s, videotape manufacturers introduced EIAJ (Electronic Industries Association of Japan) standard 1/2” open reel videotape.²² The small tape size and portable recording devices (“The Port-a-Pack”) made this video format instantly popular with artists and community activists. They used the new medium to explore political and social commentary, documentary and artistic expression and strived “to make television transcend the limitations of mere entertainment.”²³

Special Characteristics

Video art has unique characteristics that pose special challenges for archivists. First, early productions exist on an obsolete format, EIAJ 1/2” open reel. Not only are these tapes deteriorating at a rapid rate, but the small number of playback decks still in working condition are in danger of breaking down altogether with no replacement parts available. Second, very few video art productions are in traditional archives. Instead they are stored

²¹ Ibid.

²² Wheeler, 3.

²³ Murphy.

under conditions likely to hasten deterioration—in artists’ garages, basements and attics; or in small media centers unable to provide proper storage. Third, there is high interest among the arts community and in activist circles in preserving them, yet there is a lack of funding to do so. Finally, artists’ visions often differ from technical standards, so that in “fixing” a video art piece according to broadcast engineering standards of color and light, the artist’s original intent is lost.²⁴

Preserving The Eternal Frame

In 2003, the Bay Area Video Coalition (BAVC), a nonprofit media arts organization in San Francisco, participated in a unique opportunity to preserve the video art piece, *The Eternal Frame*. In 1975, the arts collective Ant Farm, along with the performance art group T.R. Uthco videotaped a reenactment of the assassination of John F. Kennedy. Combining reenactment footage with interviews with the artists and tourists, the piece examines “the power and significance of visual representation.”²⁵ Typical of many video art productions, *The Eternal Frame* source tapes were deteriorating because of age and poor storage conditions. The tapes spent many years in a basement in a fiberglass suitcase and even survived a house fire.²⁶ In addition, the existing copies of the piece differed from the original in light and color levels.

²⁴ Ibid.

²⁵ Heather Weaver and Kirsten Menger-Anderson, “Restoring the Eternal Frame,” *DV.com Magazine* (18 June 2003), [e-magazine] http://www.dv.com/news/news_item.jhtml;jsessionid=1M0ZGWZ5BQZ4OQSNDBCCCKHSCJUMKJVN?LookupId=/xml/feature/2003/weaver.anderson0703.iwold&_requestid=244143 (accessed 9 August 2005).

²⁶ *Playback: Preserving Analog Video*.

Process

Deterioration of the videotapes had begun because of their exposure to dirt, heat, cold and fire. The binder was breaking down and the backing was distorted causing numerous dropouts and playback mistracking. It was obvious that the tapes needed to be cleaned before being transferred to a new format. Twenty-five 1/2" open reel source tapes were cycled through BAVC's modified tape cleaning machine to remove debris and dust particles. Technicians then transferred the content to Betacam SP, an affordable current tape format. The restoration editor used the new Betacam SP tapes to re-edit the program according to the original edit decision list, under the supervision of two of the artists as well as a conservator.²⁷

Ethical Considerations

While the technical processes of cleaning, transferring and restoration of The Eternal Frame were straightforward, the decision-making process, in contrast, posed many ethical challenges. Three differing viewpoints were involved: the artists, the technical staff, and the conservator. During the restoration edit, the artists wanted to make aesthetic improvements, while the editor was tempted to alter light and color levels according to broadcast standards. The conservator, who represented the archival point of view, wanted to maintain the historical integrity of the piece.²⁸

²⁷ Weaver and Menger-Anderson.

²⁸ *Playback: Preserving Analog Video.*

Archivists strive to provide access to the records in their repositories. In the case of videotape materials, this access is achieved by transferring the content of deteriorating tapes to new formats. This transfer process, however, can be in conflict with the Society of American Archivists ethic of authenticity, which states:

Archivists strive to preserve and protect the authenticity of records in their holdings...They have a fundamental obligation to preserve the intellectual and physical integrity of those records. Archivists may not alter, manipulate, or destroy data or records to conceal facts or distort evidence.²⁹

Paton cautions archivists that the preservation of tape should “neither [improve] the original nor [allow] the introduction of new distortion or flaws.”³⁰

So how far can the preservation process go before the authenticity of the record is compromised? Brooks points out that “an alteration to the video signal (e.g. removing a glitch, changing a level) is really a permanent intervention [which] melds with the original signal and is inseparable.”³¹ But because artists, preservation staff, and a conservator were all involved in its restoration process, *The Eternal Frame* was able to maintain both its artistic integrity and historical authenticity. The cleaning process ensured that the signal closest to the original was transferred to the new format. Only

²⁹ Society of American Archivists Council, “Code of Ethics for Archivists,” *SAA Online* [home page on-line]; available from http://www.archivists.org/governance/handbook/app_ethics.asp; Internet; accessed 10 August 2005.

³⁰ Paton, 203.

³¹ Connie Brooks, “Videotape Preservation: Ethical Considerations,” in *Playback: A Preservation Primer for Video*, (San Francisco: Bay Area Video Coalition, 1998), 22.

damage caused by age and deterioration—dropout, mistracking—was fixed. Historical imperfections inherent to the technology available at the time of production, like camera aperture shifts and focus problems, were left intact. And the artists’ original intent of color and light levels was restored.³²

Conclusion

Videotape is not a permanent medium. It was manufactured to be cheap, portable and easy for the average consumer to use. It is these qualities that have made the technology hugely popular as a way to record television programming, news reports, documentary, and art. It is these same qualities that contribute to videotape’s short lifespan, less than 30 years under optimal storage conditions.³³ The rapid deterioration of videotapes makes their preservation in libraries and archives an urgent matter if these unique historical records are to survive. Currently, most videotape preservation programs, because of the specialized equipment and highly technical expertise needed, occur in private media centers rather than in archives themselves. However, isolating preservation work from trained archivists can result in irrevocably changing the original content, leading to an inaccurate archival record. But, as The Eternal Frame example illustrates, if preservation technicians, artists, and archivists forge a cooperative effort, preservation standards for videotape can be developed that do not compromise the historical or artistic integrity of the piece.

³² *Playback: Preserving Analog Video.*

³³ Murphy.

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