The Venus Fly Trap: The Lure and Pitfalls of Digitizing Moving Image Collections

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Abstract: The potential for tapping into the popularity of web video content has increased repository interest in digitizing film collections. The lure of instant access to digital content can attract the attention of donors and patrons. However, film digitization projects face potential pitfalls such as complicated rights issues, high costs due to the need for specialized handling procedures and labor intensive cataloging. The lack of clear preservation format standards for video content creates a preservation risk. A project at Old Dominion University to digitize a collection of five thousand 16mm newsreel films dated 1940-1980 will be used to discuss these issues. The collection contains some 35,000 individual stories that were shown on WTAR-TV in Norfolk Virginia and created by local and national vendors, some of which are defunct. Because of the difficulty of determining ownership of the physical collection and its intellectual property rights, the films remained unused in a university storeroom for 10 years. Publicity about writing a grant to digitize the collection has brought requests from local public school systems and libraries to use the collection in their own digital content delivery systems. These partnerships could substantially broaden use of the collection but raise intellectual property issues. Strategies to avoid these pitfalls are discussed.

The lure

The seductive pull to digitize moving image collections is made up of three forces: content, access, and preservation. The attraction is historically significant content. Old Dominion University (ODU) has a collection of 4,600 reels of 16mm acetate film that were used by WTAR, a television station in Norfolk Virginia. The content was created by WTAR; CBS and NBC national; and news vendors such as Telenews Productions. The collection spans from the 1940s to 1980. The earliest material is newsreels - short documentaries originally developed to be shown in movie theatres – that was created before the television station was founded in 1950. Although primarily composed of short news stories, the collection also includes a local women's talk show.

Topics include aviation, politics, military, civil rights, sports, science, and religion. The collection shows the influence of Norfolk's geographic location and large military presence. The city is the home of the world's largest naval base and the world's largest military alliance, the North Atlantic Treaty Organization (NATO). For example, international military crises are documented in the films "The Cuban Missile Crisis" and "Tenth Anniversary of 'A' Bomb Drop on Japan." The collection chronicles the progression of aviation from the 50th anniversary of powered flight at Kitty Hawk to Sputnik. Films include visits of Queen Elizabeth, Winston Churchill, and presidential candidate John F. Kennedy to the region. International events, from elections in India to riots in China, are included.

Domestic topics are well represented in the collection: civil rights and school desegregation films include a 1955 portrait of the Supreme Court for a story on Brown v. Board of Education and stories on the Special Session of the Virginia Legislature in 1956 when "Massive Resistance" laws were passed to circumvent the Brown decision. Popular culture from athletics, "Joe Louis" and "Rocky Marciano," to fashion - Christian Dior's "New Look," are included. Films show Dr. Salk and his mentor Dr. Francis

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discussing the polio vaccines. The importance of the collection becomes even more telling when we realize that these are the only extant copies of some films.

This historically significant content captivates the public, particularly the idea of being able to access the content on the web. Our plan to write a grant to digitize the collection was newsworthy enough to generate an article in the local newspaper.[1] Just hearing that we were creating an inventory of the collection brought a flurry of patron requests for the content. The morning after the article appeared, we received an offer to donate $200,000. More evidence of the thirst for this content is that the donor demanded that we digitize the collection immediately. The demand was resolved after long talks with development and the donor about the digitizing process.

Content providers and consumers are also eager for digitized video. The public TV station, WHRO, owned by 18 school districts, requested use of the collection in their own digital content delivery system eMediaVa.[2] In exchange, WHRO offered to create transcripts and Virginia Standard of Learning[3] metadata for each item. The Norfolk Public Library requested use of the collection for their patrons via their own portal and for use with oversized touch screens in multiple physical sites.

The need to preserve the collection was also compelling, but that alone would not be sufficient to digitize the collection were it not for the nationally significant content and the interest of patrons. Karen F. Gracy points out that access is frequently the driving force in film digitization projects because few repositories are wealthy enough to digitize collections based solely on preservation needs. [4]

The pitfalls

Despite the interest in digitizing moving image collections, there are serious potential pitfalls in such projects. Gracy identified barriers in the "areas of resources, technological expertise, and copyright. "[5] To this, I would add problems with description and the risk that digitization may decrease rather than increase the material's life span.

Ownership/rights

Intellectual property rights for the collection are complicated. For Old Dominion University, the morass started with the question of physical ownership. The original owner of the film, WTAR, planned to throw it away in 1981. The news director suggested offering it to the Norfolk Public Library. The Library accepted the gift but couldn't store the collection so asked the television station at ODU to store it. They agreed to hold the collection in a climate controlled room after being promised an inventory and access to the content in the future.

Fast forward 15 years. As the new University Archivist, I happened to hear about the collection and gathered stakeholders to discuss writing a grant to digitize the collection. It quickly became evident that in order to write a grant, we need clear rights to the collection. This was easier said than done. Any transfer of ownership or access agreements did not exist at ODU or at the Norfolk Public Library. Asking

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[1] Biz Carson, "WTKR news reels provide a lens on local history," *The Virginian-Pilot*, May 30, 2012, accessed December 16, 2013. http://hamptonroads.com/2012/05/wtkr-news-reels-provide-lens-local-history.
[2] Initially developed by WHRO in Norfolk Virginia, eMediaVa is now a statewide digital media distribution system.
[3] "Standards of Learning (SOL) describe the commonwealth's expectations for student learning and achievement in grades K-12 in English, mathematics, science, history/social science, technology, the fine arts, foreign language, health and physical education, and driver education," Virginia Department of Education, accessed December 17, 2013, http://www.doe.virginia.gov/testing/sol/standards_docs/.
[4] Karen F. Gracy, "Distribution and Consumption Patterns of Archival Moving Images in Online Environments," *American Archivist* 75 (Fall/Winter 2012): 423.
[5] Gracy, "Distribution and Consumption," 446.

WTAR for their copies was impossible because the original station no longer exists. The station got new call letters and a new owner in 1981 and has been sold many times since then, so was unlikely to have the agreements.[6] Finally I asked the former news director to donate the collection directly to us, promising to share any digitized content with the public library. He agreed and signed a Deed of Gift.

Now that we owned the physical collection we needed to identify the collection's intellectual property owner to get permission to digitize the collection. That is easier said than done. The films were created by WTAR, CBS national, and assorted news services, many of whom are out of business. Old Dominion University Libraries repeatedly tried to contact the new station's management, CBS local, and CBS National to secure rights to digitize the collection. We asked an elected official and ex-station employee to approach the station's owner on our behalf. We never received any response. We took this to mean that they had no issue with us publishing their films. University Counsel was consulted and stated that digitizing and publishing the collection was allowable under the doctrine of "fair use"[7], particularly after the Georgia State University decision. [8]

University Counsel also cleared us to share content with the Norfolk Public Library, in compliance with the donor agreement. Broadening the circle of who we share content with will require any potential partners, such eMediaVa, to re-examine intellectual property rights questions. Although the content will be ODU branded, some voices within the library felt that the use of the material on external portals would dilute the collection's value. The overriding sentiment however was that expanding the audience for the collection would be beneficial to general scholarship in the state and would significantly raise the profile of ODU libraries.

Scope and content challenges

Creating an inventory that describes the scope and size of a moving image collection, another necessity of a grant application, can be quite challenging. The inventory created by the station, and promised in 1990, never appeared. We could have no first-hand knowledge of the content because we lacked a 16 mm film projector. Discovery of the content would have to be restricted to external labels and occasional written documentation. An example of the limitations of this method became clear when one of the reels was digitized for a patron.

> … this seems to be raw footage or B-roll from the shoot. I don't think this could have been the show as it aired (even if it had had narration that's now missing)... it is not the finished documentary that we expected… maybe an on-air version will turn up one day in a mislabeled box or canister...[9]

The relevant size measurement for film is not how many reels, but film length – measured in running feet or run-time. Run time can be determined by playing the film – not an option since we lack a projector; examining written documentation – only 30% of the film list a run time; or measuring the diameter of film on a reel.

We trained a group of volunteers and students who spent two semesters inventorying the films. We developed an inventory sheet and methodology. Using whatever labeling they could find, students noted

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[6] WTKR was sold in to 1989 Narragansett Television, in 1995 to The New York Times Company and in 2007 to Local TV LLC. In 2013, the station was sold to the Tribune Company and Dreamcatcher Broadcasting.

[7] "Copyright, Fair Use," US Copyright Office, reviewed June 2012, accessed December 18, 2013, http://www.copyright.gov/fls/fl102.html.

[8] Cambridge University Press v. Becker, No. 1:2008cv01425 (N.D. Ga., May 11, 2012), accessed December 24, 2013, http://docs.justia.com/cases/federal/district-courts/georgia/gandce/1:2008cv01425/150651/423/0.pdf?ts=1337225450.

[9] Email from Joseph Penello to author, "RE: Silver in the East," August 8, 2013.

film title, size, condition and format. About a quarter of the films have no labeling at all, many have no date, and others say simply "News" or "B roll." We dutifully measured the diameter of each film, only afterwards realizing that this number was almost meaningless without knowing the core/reel size. A tape listed as 6 inch in diameter might be on a 1 inch core, 3 inch reel or loosely taped together with no core at all. However we were able to use our diameter measurement to group films into short, medium and long. By comparing films with known runtimes or running feet in each of these groups, we could estimate a total run time of the collection. As they worked through the storeroom, we found that we had twice as many tapes as we originally estimated.

High expense and few funding sources

A significant barrier to film digitizing projects is the expense. The physical processing of 16 mm film involves cleaning, repairing, color correcting and digitizing. When we digitized a ½ hour of film for a patron, it cost $250. A vendor estimate for our entire collection is $512, 000. Creating metadata is also expensive because each reel of film could contain multiple news stories that each needs to be viewed and described individually. Additional expenses are storage of archival and access files and creating a web portal. Grants for this size project are few and far between. NHPRC's "Documenting Democracy: Access to Historical Records Projects" grant, which typically funds about $70,000 - $100,000, was the best fit for our project. By eliminating films with vague or no titles, we reduced the size of the collection and the cost to within the limits of the grant.

Preservation risks: an invention without a future?[10]

One goal of this digitizing project is preservation reformatting - migrating the content to a new format to increase access and longevity. However there is a risk that the new format will be more unstable than the old one. Examples of these dangers with analog moving image media include polyester film "preservation" copies deteriorating more quickly than original acetate film.[11] Collections of nitrate film, thought to be universally dangerous, were moved to "safety film" and destroyed. Later "safety film" developed long term durability problems.[12] Heather Heckman suggests that the flammability of nitrate film can be mediated by appropriate humidity and temperature controls. Says Heckman, "Manuals and standards should no longer endorse copy-and-destroy policies as optimal solutions."[13]

Given the short life of many digital formats, choosing one for moving image collections is particularly risky. Unfortunately there are no clear archival standards for video content. Even guidance on sustainable digital formats is hard to come by. A summary of a 2003 conference on preservation reformatting begins with, "Anyone who expected a review of standards or sought solutions for specific technical problems must have been disappointed, if not bewildered."[14] Library of Congress provides only a list of, "Acceptable file formats, in order of preference."[15]

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[10] A quote attributed to Louis Lumière, an early filmmaker and film technology inventory. James Monaco, *How to Read a Film: The World of Movies, Media, Multimedia - Language, History, Theory: 3rd Edition*, (USA: Oxford University Press, 2000), 38.

[11] Christopher Ann Paton, "Preservation Re-Recording of Audio Recordings in Archives: Problems, Priorities, Technologies, and Recommendations," *American Archivist* 61 (Spring/Summer 1998): 195.

[12] Heather Heckman, "Burn After Viewing, or, Fire in the Vaults: Nitrate Decomposition and Combustibility," *American Archivist* 73 no. 2 (Fall-Winter 2010): 483-506

[13] Heather Heckman, "Burn After Viewing," 504.

[14] Maria E. Gonzalez "Preservation Reformatting Conference: Digital Technology vs. Analog Technology" *Abbey Newsletter* 26, no. July 5, 2003, accessed December 17, 2013, http://cool.conservation-us.org/byorg/abbey/an/an26/an26-5/an26-502.html.

[15] "Sustainability of Digital Formats Planning for Library of Congress Collections," Library of Congress, undated, accessed December 17, 2013, http://www.digitalpreservation.gov/formats/content/video_preferences.shtml.

Prior to writing this grant, ODU Libraries had developed a Digital Preservation Policy, melding together standards and best practices from several sources. However, we soon discovered that the file formats we chose for moving images were wrong.[16] For instance our choice of wrapper[17], which combines the audio and video streams, turned out to have no player. We did more research, got a bit more confused, but decided to accept a vendor's recommendation to use 10 bit uncompressed QuickTime .MOV as a preservation copy and a user/web-ready file MPEG-4 AVC H.264 accessed through CONTENTdm. ODU will be preserving three copies of each film: the restored physical version and two digital formats.

Findings

- Research intellectual property rights and ownership issues before seeking funding to digitize a collection. Because sharing content with partners may complicate rights, consider meeting with your institution's legal counsel.

- To describe the scope and contents of moving image collections when you are unable to view the material firsthand:
    - Triangulate known with unknown information, as we did when we matched external labels, diameter measurements, and known runtimes.
    - Initiate a pilot project to digitize a small number of items to have concrete proof of content.

- To get as accurate a price estimate as possible, learn about vendor pricing formulas in advance. Showing draft inventories to vendors or archivists familiar with that type of media can insure that the methods are creating worthwhile size data.

- To lower the cost of the overall project, select a subset of the collection by topic, quality of description, or most in need of preservation. Be prepared to justify your selection criteria when making a funding request.

- Inversely, if you decide to digitize the entire collection, anticipate a common concern of grant reviewers by showing that the collection has minimal duplicates and third-party material.

- To lower the cost of metadata creation, consider providing a reduced level of metadata for each item. One possibility is to use the limited metadata such as title, format, runtime, etc. that vendors typically include in the cost of digitizing. Additional cataloging can be done in another round with additional funding.

- To hedge against potential problems with new digital formats, plan to preserve the physical as well as the digital copies of the collection.

Conclusion

Despite the problems inherent in digitizing moving image collections, there are rich rewards. The project at Old Dominion University to digitize the WTAR historic film collection will allow a broad public access to historically significant content. This patron's thank you note is a sample of the promise of the full project:

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[16] "Old Dominion University Libraries Digital Preservation Policy," May 2012, accessed December 17, 2013. http://www.lib.odu.edu/aboutthelibraries/ODULibrariesDigitalPreservationPolicy.pdf.

[17] Killian Escobedo, "Digital Video Preservation: Identifying Containers and Codecs," Smithsonian Institute Archives, July 26, 2011, accessed December 17, 2013, http://siarchives.si.edu/blog/digital-video-preservation-continuing-conversation.

> Our copies of "Silver in the East" arrived late yesterday, and I just wanted to thank you again for making this miracle happen. It was very emotional for us to see my father in his prime, especially at work in the boat's pilot house. Those are images nobody ever even captured on home movies. Oh, and to see what now seem like the beautiful faces of those rugged men who worked on the boat -- faces we hadn't laid eyes on in decades! Goose bump time![18]

The technology that today allows everyone to create and view video content has, surprisingly, increased interest in film from a time when few could produce moving images and access was restricted to set times and often set venues. Yet what has not changed is that most people have an emotional connection to moving images, particularly images that document their past.

Resources

Gracy, Karen F. "Distribution and Consumption Patterns of Archival Moving Images in Online Environments." *American Archivist* 75 (Fall/Winter 2012): 422-455.

Heckman, Heather. "Burn After Viewing, or, Fire in the Vaults: Nitrate Decomposition and Combustibility." *American Archivist* 73 no. 2 (Fall/Winter 2010): 483-506.

Paton, Christopher Ann. "Preservation Re-Recording of Audio Recordings in Archives: Problems, Priorities, Technologies, and Recommendations." *American Archivist* 61 (Spring/Summer 1998): 188-219.

[18] Penello, "Silver".