

**A Digitization Strategy for
The Art Institute of Chicago's Ryerson & Burnham Archives**

The Collection

The Ryerson & Burnham Archives are located in the Ryerson & Burnham Libraries at The Art Institute of Chicago. The Ryerson & Burnham Libraries were established to support the curatorial departments of The Art Institute of Chicago. The collections are developed to supplement and extend the permanent collection at The Art Institute of Chicago.

The core of the Archives is in artists' and architects' papers. It's particular strength lays within 19th- and 20th- century architecture. Although the majority of the collections' contents are in manuscripts and photographs, there are also AV materials integrated into individual collections.

Materials in our Scope

The first step of the digitization process is to assess the AV collection. During this first stage, the focus will be on processed collections (though there are also many materials that may be found in the off-site unprocessed collections). Through searching the Finding Aids that the Archives have previously created, AV materials have been located in multiple collections, including: the Chicago 2016 Olympic Bid Collection (2006-2009), Allan J. Gelbin Papers (1929-1994), Bruce A. Goff Archive (1904-1982), Bertrand Goldberg Archive (1913-1997), Bruce J. Graham Papers (1925-2010), Fazlur R. Khan Collection (1929-1982), Richard Nickel Archive (1850-2011), Arthur Siegel Papers (1913-1978), Sullivaniana Collection (1780-2018), Stanley Tigerman Papers (1941-1993), John Vinci Papers (1894-2001), and Ben Weese Papers (1925-2009).¹ In most cases AV materials are consolidated into separate Series within collections, and are under restricted access. Description of AV materials in the Finding Aids is generally limited to recognizing the physical carriers through notating the media type, occasional transcription of name-title references provided by labels contained in or with the carriers, and the contents are occasionally listed as "unidentified." The goal of this project is to increase access to the AV materials within the Archives collection. As part of this project we will also be expanding these descriptions to include the intellectual contents.

¹ "Ryerson & Burnham Libraries: Finding Aids," The Art Institute of Chicago, <https://www.artic.edu/archival-collections/finding-aids>

This project will be including materials in multiple formats, including: analog audio, film, and video carriers, as well as born-digital files. Audio formats include analog (unspecified) and 1/4" magnetic-tape reels, audio-master reels, audiocassettes, and audio CDs and DVDs. Film formats include 8mm film, 16mm film. Video formats include VHS videocassettes, U-matic video cassettes, V32 helical scan videocassette (1/2" open-reel tape), (PAL) videocassette, and 2" (chroma) magnetic reel. Born-digital documents are on CD, CD-rom, and DVD carriers. Also included in the Archives are camera and film equipment, including such as flashbulbs, 35mm camera, and a 16mm projector.

Storage

As the onsite storage for the Archives is located in the Libraries' closed stacks inside of the central building. Since entering the Archives, all materials have been stored in secure humidity- and temperature- controlled environments, yet the environmental conditions that they were stored in before entering the Archives vary widely. The storage conditions onsite are based on best-practice standards for the paper-based contents of the Archives, yet AV materials' storage needs depend on media.

As the project progresses, new storage conditions will be reassessed and new storage conditions will be determined. We are including budget for re-casing any media that are in unsuitable storage containers. After digitization, the masters (legacy audiovisual carriers) will be retained, yet depending on their specific vulnerabilities some will be further removed from access to prevent further degradations.² We do not anticipate any nitrate films in the collection (which makes all lives simpler!). All films will be stored in horizontal orientation, and on cores rather than reels. Films without magnetic tracks and any magnetic audiovisual materials with acetate bases will be stored off-site in individually sealed cans in a frozen state; film with magnetic tracks will be stored in vented cans and placed in cold storage (potentially on-site);³ magnetic video and audio reels and cassettes will be stored in vertical orientation in archival-quality paperboard boxes and remain on-site (in the main environmental-controlled archive storage location), and digital materials will be stored in archival-quality paperboard boxes and remain on-site as well.

Prioritization

All of our AV materials have been previously determined to be of high archival value, and our digitization project will be comprehensive. Our digitization project will provide us with enhanced opportunities to preserve both the physical and intellectual properties of our collection. Materials that already exist in a digital format will be preserved.

² It is possible that the dye-based recordable CD and DVD disks are an exception to this concept, as they do not have inherent value and will soon be inaccessible/corrupt (error-disks rather than data-disks). Do to their non-archival format, it may be determined that it would be reasonable to dispose of them after successful transfer of contents to a stable platform.

³ A shared cold-storage facility located in the Photography Department, currently used for color prints and films, is an existing locational possibility to explore.

In order to determine where to start, we will need to determine a prioritization based on which materials are most at risk: those that are in unstable condition, and which formats are (or will soon be) considered obsolete. During the initial phase of assessment we are using the “Preservation Self-Assessment Program,” developed by University of Illinois at Urbana-Champaign.⁴

Most of the analog AV materials are from the 1950s-present. There are 11 reels of 16mm film in the Richard Nickel Archive from c1933-1955, but they are likely acetate and relatively stable. 8mm and 16mm acetate film is at moderate-risk level. Regular 8mm film is prone to the following problems: acetate breakdown/vinegar syndrome (if cellulose acetate is the base), mold, and physical damage (e.g. torn sprocket holes, damaged splices, scratches, and mag stock breakdown). Cellulose acetate has a characteristic kind of breakdown known as “vinegar syndrome.” Acetate film is also susceptible to shrinkage, tears, and decay, in addition to some normal wear and tear from viewing use.

Magnetic tape is at a varying risk level. Magnetic tape is susceptible to signal loss. Additionally, tape is susceptible to mold, binder-deterioration, and other biological issues (yet we are fairly confident that its controlled-environment storage has stabilized it within a low-risk assessment). Any plastic enclosures around magnetized tape are susceptible to breakage and deterioration and will likely be replaced or disposed of as materials are digitized. The main risk-assessment with magnetic tapes is due to equipment obsolescence—VHS is at a low-risk due to availability of play-back equipment, but our U-matic video cassettes, ½” magnetic tapes, and 2” magnetic tapes are at high-risk level because their play-back equipment obsolescence. Additionally, ½” magnetic tapes are particularly susceptible to sticky-shed syndrome.

Despite the relative stability of optical media, the CD and DVD materials are probably the AV materials that concern me most at this point. CD and DVD formats are not archival, and it is not clear from the finding aid descriptions, but it is highly likely that they are recordable/rewritable formats. RW and RAM consumer-written disks are only ever meant for temporary storage (5-10 years); They are prone to data loss over time, and may experience signal loss and failure. The finding aids also do not describe what wrappers (file formats) are on these disks, and if the required software and hardware needed to access the files are still accessible. Additionally, we do not know if these disks were written by the content-creator or in-house, or their previous handling or storage conditions.⁵ These materials might be considered, thus, medium- to high-risk.

⁴ “Preservation Self-Assessment Program,” *University of Illinois at Urbana-Champaign*, <https://psap.library.illinois.edu/collection-id-guide/film#film8mm> (Accessed Aug 2, 2019)

⁵ Any inks or solvents used to the surface of the disks increase potential corruption to the data stored on the disks. See F.R. Byers, *Care and Handling of CDs and DVDs: A guide for Librarians and Archivists* (National Institute of Standards and Technology, 2003).

Formatting

Due to the small scale of our research library, we will be streamlining the digitization process through normalizing all wrappers to be easily accessible through the smallest variation of possibilities. We will not be investing in archival playback equipment; Full access to our digitized AV materials will be accessible only through a single database on provided computers that patrons may access on-site in our Reading Room's Media Room.

Restoration

Though this is not a restoration project, any digitization and migration process will naturally involve decisions that may slightly alter the original information, especially in analog-to-digital conversions. Simple restoration processes that might be conducted during this project include: basic cleaning of all materials, repairing film splices and removing any glue residues from previous repairs, usually through basic filters and techniques that enhance the scanning quality or increase the efficiency of the scanning-production process. All technicians will be encouraged to only use the most minimal enhancements required for a high-quality scan. All decisions will be documented.⁶ Following the archivists' code, any decisions made must be reversible.

Outside Vendors

Due to the specialized skillsets of the technicians and the specialized equipment needs involved, the Archives have determined that it would be economically beneficial to commission external vendors for the digitization of all of the analog materials (including film and tape). Local vendors such as Chicago Film Archives and Media Burn Archives will be prioritized for moving-image materials.⁷ For sound materials we have located independent contractors through Chicago Area Archivists who have extensive training in sound engineering and archival practices.⁸ As part of quality control, we will be largely consulting standards established by AMIA, FIAF, and IASA.⁹

Audio files will be normalized in a WAV container file.

⁶ " 'Documentation' means that the technician and the archivist keep a record of how the copies were made, including information on the original format, how the original recording was played during transfer (including the equalization used, in the case of phonodiscs), and how the transfer recording was made. Recording speeds, the presence of test tones, the track configuration, and any other information that will help archivists and technicians understand clearly what the new recording is and what the original recording was should be noted." Christopher Ann Paton, "Preservation Re-Recording of Audio Recordings in Archives: Problems, Priorities, Technologies, and Recommendations." *American Archivist* 61.1 (Spring, 1998): 209.

⁷ For more obsolete video formats, such as 2" magnetic tape, we may need to research other vendors.

⁸ We have been referred to contractors who are part of the Audio Engineering Society Chapter at Columbia College and are currently working in audio archiving at WBEZ; Although WBEZ is not currently an independent vendor, we hope to enter an agreement with WBEZ to contract their archivists and use their facilities for this special project.

⁹ The Association of Moving Image Archivists, <https://amianet.org/>; International Federation of Film Archives, <https://www.fiafnet.org/>; and International Association of Sound and Audiovisual Archives, <https://www.iasa-web.org/>

For moving-image files, JPG 2000 will be used as an economical archival formatting solution of choice for master digital files.¹⁰ Additionally, we will be simultaneously making compressed digital files (compressed at bitrates down to 200 Mbps) for user-access viewing copies for in-library research use, which are only ever intended to be viewed on a desktop computer monitor in the Reading Room's Media Room. Moving-image files will be normalized in a MOV container file.¹¹

All original born-digital files will be preserved in their originally-received digital format. Preservation copies will be normalized. Preference for wrappers will be given to most widely-accessible, well-documented, and license-free, non-proprietary codecs.¹² Due to the nature of our materials we will not have to face preservation of software or digital environments, or making optical disks.

Migration

Preservation is an ongoing activity that does not end at digitization. Although this project will accomplish a large step in our preservation goals, and original master carriers will be stabilized for long-term storage, after the completion of this project our emphasis will be on establishing guidelines for preserving our digital files. Due to the rapid advancements of technology, digital wrappers are at risk of quickly becoming obsolete. We will begin our digital preservation endeavors by implementing a migration schedule every 5-10 years. In the latency between migration activities, our digital archivists will be activity conducting research and seeking advice in new stable formats that we should migrate to next to prevent our usage and storage on obsolete digital formats.

Cataloguing

The accessibility of the collections will be enhanced with the implementation of PB Core cataloguing software, which will be (continuously) integrated/cross-walked into the Library's current use of the LSP catalogue Alma/Primo. PB Core files will also contain preservation documentation (and notes on migration schedules) and copyright information.

As materials are processed, we will be updating and standardizing our records for accuracy and consistency. Whereas before the digitization process a record might be limited to "Unidentified - 16mm film" we will provide all records with a descriptive title, information regarding specifications—such as film and tape substrates (polyester,

¹⁰ If curatorial department at the Museum are interested in later including moving-image archive materials in exhibitions, a DCP file will be made at request. Although MPEG-4 resolution might be sufficient for in-house research usage, given the 8mm-16mm size of our collection, we are compelled to scan with a mathematically lossless compression for the mater files, due to potential exhibition use. JPEG 2000 formats are compatible with DCP applications. See Tom de Smet and Harm Jan Triemstra, *White Paper: Film Scanning Considerations* (Presto Centre).

¹¹ MOV is preferred as our technical support is currently focused in Apple computers. MOV is a license-free and well-documented format.

¹² Chris Lacinak, "A Primer on Codecs for Moving Image and Sound Archives" (2010). Admittedly, my comprehension on best-practices regarding born-digital materials is weak; I plan to take Digital Preservation in on of the upcoming semesters.

acetate...PVC, paper), color or black&white, sound (magnetic or optical), magnetic-tape formats cassette types, as well as documentation of all digital-file formats used (including carriers and wrappers)—that will better benefit the Archives, Libraries, and users.

Additionally, the item records for AV materials will be further integrated with the Libraries' collections through the addition of completed metadata elements (including LCSH) that will provide comprehensive access to the intellectual content of the AV materials, and will be accessible to catalogue browsers through Primo.¹³

User Access

The Libraries have historically been a non-circulating collection. Although digitization offers the opportunity for remote access via the world wide web, our objective at this point is to focus on users who will be using materials on-site in the Reading Room. Visitors will be encouraged to access files on our internal databases, using provided computers and equipment in our Media Room. This focus will not only allow us to practice responsible stewardship to our collection, and to monitor collection use (and discourage unauthorized copies from being made), but to also serve our users more fully by providing technical and reference resources to users throughout their visit.

Stewardship of Copyrights

Although the majority of our AV materials are unpublished and original documents, due to the diversity of the donor agreements affiliated with the varying collections, some of our use of these materials are still limited by external copyright holders. Careful vigilance of copyright agreements must be maintained. As our collections are preserved, we will also be enhancing the organization of our agreements with copyright holders. Copyright information will be added to each items' item record in order to encourage compliance with our license agreements.

Copyright Act Section 108 addresses only preservation reproductions that are conducted on AV materials that are damaged or on obsolete formatting. Although Section 108 may apply to some of our activities, we will be largely supplementing Section 108 privileges with the Fair Use privileges that allow preservation reproductions to be made in non-for-profit libraries and archives for education and research purposes.¹⁴ Item records will also note which copyright privileges are covered under which parts of the Copyright Act so that reference librarians and researchers are fully aware of their abilities in regard to publication, exhibition, reproduction, and citation.

¹³ This integration of the AV archive materials with the main Libraries' catalogue is a crucial aspect of our preservation goal, as AV materials have long been segregated from the main Libraries' collection as a subset within another subset, thus doubly removed—not only due to their location within the Archives, but also due to format type for too long. For issues in the re-integration of AV materials see Andrea Leigh, "Context! Context! Context! Describing Moving Images at the Collection Level." *The Moving Image* 6. 1 (2006), 33-65.

¹⁴ Copyright Law of the United States, <https://www.copyright.gov/title17/>

Digital preservation of born-digital materials will largely be conducted on site, as will all migrations.

Outreach

Throughout this entire process we will be creating comprehensive documentation of all activities and decisions. In order to increase public awareness of our activities, we will be working with the Public Relations and Press staff to publicize our preservation accomplishments, and share details of the new discoveries that we learn of regarding our collections.

It is important that our direct community is aware of the increased accessibility of our collection, and we are looking forward to increased usage by our patrons. As a wealth of newly accessible materials re-enter the collection, we will be organizing informative meetings with Reference Librarians, Curatorial Departments, and School of the Art Institute faculty to help increase awareness of the AV materials and encourage future exhibition and research opportunities.

Disaster Planning

The Libraries already have a Disaster Plan in place, which includes comprehensive plans in the case of environmental disasters such as flooding and facilities-related disasters such as fire; these plans have already been expanded to cover the Archives. In regards to digital archives, we will keep digital copies of our archival records both on-site and on a server located off-site.

Sustainability

The Archives are aware of the challenges of e-waste. As a non-profit library we are already implementing efficiency standards on all technologies, and prioritizing repairing and upgrading equipment over replacements. We are willing to directing resources to research and invest in long-term plans sustainable plans. We will prioritize purchases from retailers who are successful e-Stewards, have e-recycling programs, and approved by the Basel Action Network,¹⁵ in order to lessen the satanic effects of colonization through pollution. We will further educate ourselves on state laws regarding e-waste and supplement those laws with our own internal standards by drafting an e-waste management policy and assure that all staff aware and actively following this policy. We will be conscientious of the e-waste produced by larger file sizes and limit file sizes to that which is necessary to complete the task at hand.

Funding

In order to conduct this project, substantial funding will need to be acquired. We will be researching supplemental funding possibilities that exist through preservation and cataloguing grants offered to small libraries and archives through the National Endowment of the Arts Division of Preservation and Access, National Historical Publications and

¹⁵ Basel Action Network, <https://www.ban.org/>

Records Commission (NHPRC) of the National Archives, and National Film Preservation Foundation.

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