"Step away from the machine": A Look at Our Collective Past

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Abstract
A look at the history of academic media collections through the evolution of media formats. It is divided into broad format sections: visual, audio, and audiovisual. It is part literature review, part facts and trivia, and part personal stories.

Introduction
There are many issues impacting the history of media collections in academic libraries. Facets of this history are intertwined with the profession of media librarianship and the fields adjacent to it such as instructional technology and audiovisual production. Additionally, popular culture and the demand from library users impact our collection development decisions. Topics such as printism and media bias, naming of our departments, professional standards and guidelines, and the education of media librarians are all influences on our collective past. However, the primary shaping force is the variety of media formats driving our collections, and that will form the basis for this essay. Abram Joseph Ryan, a Civil War chaplain, is credited with saying, "A land without ruins is a land without memories—a land without memories is a land without history" (Bartleby .com, 2003.). Media-land is strewn with the ruins of clunky media formats, costly equipment, and darkened rooms with projectionists, and filled with the memories of media librarians.

The following compilation examines developments experienced in the history of media collections in academic libraries. It involves among other sources facts, trivia, and personal remembrances from media librarians. A query was distributed to the electronic discussion list Videolib[1] asking subscribers to respond directly to the author providing their experiences, in

any capacity, with media formats over the years. Several of the subsequent e-mail replies are included here. If this article were to be translated into a digital video, it would be best expressed as a mashup. It is divided into format categories: visual, audio, and audiovisual. Discussion of computer formats is not included.

It is well documented that the heyday of academic media center collections began in the 1960s (Bobinski, 2007; Brancolini, 2002; Grove, 1975; Loucks-DiMatteo, 1985). There were many "firsts" that happened much earlier, but the greatest growth occurred from the 1960s through the 1990s. It is not surprising that this coincides with the expansion of higher education in general, as well as the consumer electronics market. After World War II there was a huge growth in nonprint formats, and libraries benefited from government aid and education programs (Bobinski, 2007). Technology advanced, media formats evolved, and they were embraced by librarians mastering the many machines associated with them.

STEPPING UP TO THE MACHINE

Early nonprint collections were comprised of photographs, pictures, and maps. Among the earliest of these collections was one notably at Harvard College Library as early as 1817 (Loucks-DiMatteo, 1985). These formats are different from those that we generally think of when envisioning modern media collections. They are essentially a form of print and will not be dealt with here. Early motion pictures, phonorecords, and slides were found in colleges and universities in this early period, but housed in academic departments or separate format collections, not central campus libraries. The move to the main university library came in the 1920s as librarians and administrators realized the value of libraries serving as resources for instruction and training as well as research (Grove, 1975). Results of a survey of academic media centers at the university level conducted in 2000 reported that, "the approximate date that a distinct media center and/or collection developed at particular institutions ranged from 1927 to 1992, the majority fell within the 1960s or 1970s, with an average starting date of 1968" (Laskowski, 2000, p. 23). Furthermore, 63 percent of these collections cited instructional support as being the founding principle, with one particular format being the basis of their collection. For the majority, or 66 percent, it was 16mm film; 15 percent based their original collection on VHS videotapes, averaging a starting date of 1980. "The few remaining responses were divided between ¾" U-matic, beta tapes, and filmstrips" (Laskowski, 2000, p.24).

Visual Formats

Primary collecting of nonprint visual media began with lantern slides from the 1880s–1900. Lantern slides are 3¼" x 4" glass slides with taped edges, upon which the image is painted or printed. Hand-painted lantern slides

dating from the seventeenth century are now considered works of art in their own right. Early college lantern collections were recorded at Bryn Mawr, Cornell University, Dartmouth College, MIT, Mount Holyoke College, Princeton University, University of Illinois, University of Michigan, University of Rochester, Wellesley College and Williams College (Irvine, 1979). Lantern slide collections still exist today at several major colleges and universities. Many of these collections are in archives, special collections, or departmental libraries, and are not part of active media center collections, yet they are still prized for their value as art history lecturing tools and their high image quality. Information abounds on the history of lantern slides, both in the professional print literature and authoritative websites (for examples see Grove, 1975; Irvine, 1979; Snow, 2002). The Art Libraries Society of North America (ARLIS) conducted a survey in 2006, the North American Lantern Slide Survey, "to learn more about lantern slide collections throughout the United States and Canada; to discover unique lantern slide holdings; and, in the process, learn about the early history of visual resources collections." The survey and preliminary data results are available on their website.

While colleges and universities started collecting lantern slides in the 1880s, the most significant library collections of slides began between 1930 and 1960 with the perfection of the Kodachrome three-color 35mm, 2x2 inch slide—the format with which most of us are familiar. This process made slides less expensive to produce and therefore more feasible for libraries to collect.

35mm slide collections followed those for lantern slides and were for many years a staple of academic media collections.

> Lantern slide collections were well established when a competing format, the 35mm color slide, was introduced. The contentious questions then were whether to adopt the 35mm color slide, the how to maintain two or more pictorial formats. The issues that constituted the debate . . . could constitute important evidence and clues for today's charged debates between the 35mm slide and the digital image. In other words, our profession encountered a transition fifty years ago similar to the one we are experiencing today. What can we learn from that earlier transition? Our literature does not yield any information on this transitional period. (Snow, 2002, p.6)

Equipment for individual viewing was set up in carrels or tables, and projectors were available for group viewing. Worries about bulbs burning out, correct placement of the slides in the tray, and slides getting jammed in machines were commonplace. For those interested in the development and history of slide projectors, Kodak has an archives section on their website that includes a timeline of slide projector history (McKeever, 2004).

The definitive work on slide libraries and slides in libraries is Irvine (1979). Irvine surveyed academic slide librarians in the United States

The projectionists for lantern slides were called lanternists, and the projectors had the name Magic Lantern (Witcombe, 2001).

"Next slide, please." State University of New York at Buffalo health sciences students circa 1976.

and also studied several collections to compile a comprehensive text on the history, cataloging, storage, and equipment necessary for such collections.

Two lesser-known visual formats that reached their peak in academic libraries in the 1960s and 70s are View-Master reels and 8mm film loops. The "boomer" childhood favorite toy, the View-Master, had reels consisting of seven pairs of images simulating binocular depth perception. These reels (perhaps the first "disks" in libraries?), not often mentioned in histories of media collections, produced some startlingly detailed 3-D images. William Gruber invented the View-Master in the 1930s and envisioned it as an educational tool. He created multireel works ranging from mycology to art, but his masterpiece, which was published in 1952, was "A Stereoscopic Atlas of Human Anatomy" with David Bassett, containing some of the best photographs of human anatomy ever taken and which many academic medical libraries still have in their collections today (Schwartz, 2008). The Wikipedia web page on the View-Master contains a link to Schwartz as well as the View-Master Resource (http://www.vmresource .com/), which is purported to be a repository for View-Master information.

deg farrelly, associate librarian at Arizona State University at the West Campus provided the following comment from his work with a collection at York College of Pennsylvania. The work he mentions is most likely Gruber and Bassett's Atlas,

> here is an oddity I remember from the collection that I eventually withdrew: View-Master reels with a View-Master Projector. Polarizing glasses worn to have the 3-D effect. What did we have to project? An amazing collection of several hundred reels of human anatomy, photos of dissected cadavers! And 3-D X-rays. Still sorry that I discarded the projector and the content! Years later this set was reproduced on laserdisc. (d. farelly, personal communication, June 7, 2009)

The other now little-remembered format from the 1960s and 70s is the 8mm film loop, which was most popular for science education. They consisted of a brief film without sound that was encased in a cartridge and inserted into a small projector that the film "looped" through. Not as popular as the View-Master, but equally as curious, there's not much written about the format in the professional literature. The following two reminiscences from colleagues are both enlightening.

> My most interesting experience was when I was asked to weed the controlled circulation media collection in my science areas in preparation for moving the collection to the new media center. I ran across an educational format that I had never seen before, despite having started grade school in the 1950's. It was a 4-inch square plastic cartridge with a raised, slanted circular top. The transparent case allowed me to see this was some sort of film loop. It was the only such item in the collection and had never been circulated. If we ever had equipment to

The View-Master's popularity increased when the U.S. government purchased six million discs to help train troops during World War II (Bertuca, 2009, View-Master section).

play these cartridges, it was long gone. Not even knowing the name for the medium, it took some research to determine that it was commonly called a Magi cartridge. The very short duration, less than 8-10 minutes, must have limited its usefulness. It made me wonder what all had been produced in this format and what was now lost to history. Perhaps nothing of unique value was issued solely in that format, but how would anyone ever determine that? And it certainly made the case that information is not information if it cannot be accessed. (A. B. Wagner, personal communication, May 26, 2009)

I recently had a nice "remember when" moment that one of my students ruined by turning it into a "damn I'm old—get off my lawn" moment. I was going through an old box of materials and found an old 8mm film loop cassette. Upon seeing it, I instantly remembered being an elementary student sitting in a carrel watching one of these loops in the mid 70's (something on a bee hive) and being amazed on how the technology worked (may have been one of those that put me on the path to being a media library professional moments as well). My current student took one look at the cassette and asked what it was. As I explained what it was, the student, born a significant time after I had last actually watched one of these in action, stood dumbfounded. She had in her pocket a not so new iPod that was smaller than the 8mm loop cassette, that could play video. The content of the cassette would not even make a dent in the amount of data it could hold. It reminded me just exactly how much technology has changed just in my own lifetime. (J. Streepy, personal communication, May 28, 2009)

"Some educators have called the 8mm cartridge film the 'paperback' of the film format since it is so readily available, so inexpensive, and so easy to use" (Butler, 1996, p. 191).

Films and filmstrips were produced without sound, but for general use in higher education, the more typical collections were those with sound. They are considered in the audiovisual section of this article.

Audio Formats
The first sound recordings made their way into academic libraries in the late 1920s (Loucks-DiMatteo, 1985). Again, media centers were not yet the norm in libraries, and recordings were part of general or special collections. The first documented academic sound recording collections referred to "records," which were most likely shellac or lacquer discs. Vinyl long play (LP) and microgroove recordings appeared after 1948 (Stauderman, 2007, "Discs," para.3). By 1949 the 33 1/3 rpm discs and the 45 rpm discs were developed and coexisted for decades, each serving a different purpose (MacQuarrie, Gu, Guerra, Corredor, & Hill, 2000, 1949 section).

Two works of note that include detailed descriptions of early sound recording collections are Grove (1975) and Chisholm (1975). Both are a snapshot in time and provide a valuable picture of the library landscape. The 1961 issue of *Library Trends*, which was devoted to media libraries, included this attention-grabbing outlook on collections at the time:

> The librarian of 1961 is aware of just how many problems he is saddled with because of past chaos in the technology of recorded sound, and there is no sign that anything approaching stability is in the offing. One informed sector of the industry committed to the disc is of the

"The Philips original cast recordings of *My Fair Lady* was one of the first million seller LPs together with Van Cliburn playing Tchaikovsky's *First Piano Concerto*" (MacQuarrie et al., 2000, 1956 section).

opinion that the familiar vinyl long play will be supplanted, probably within the next decade by a paper or paper-thin plastic magnetic disc. With such a disc, use-wear, almost entirely a function of stylus friction, will be eliminated. Others who hold that the future is in magnetic tape, look for vastly improved multi-track tape and miniature tape-cartridges. Others still feel that such revolutionary processes as General Electric's thermoplastic recording (TPR), again without frictional contact, will make all other methods obsolete. (Nolan, 1961, p. 264)

The vinyl long play was eventually supplanted in libraries by reel-to-reel magnetic tape, and then the audio cassette and to some extent the 8-track cassette. Two recent surveys beneficial for media librarians to consult are Imre and Cox (2009) and Smith, Allen, & Allen. (2004). Imre and Cox wondered how, in this age of shrinking library budgets and consolidation of services, libraries can justify retaining large analog collections. Their survey centered on issues of weeding, digitizing, and preservation. The Smith, Allen, and Allen survey, published by the Council on Library Resources, set out to "collect and analyze baseline information about the status of audio collections held by a set of research institutions" (p. 3). In "Part 2—Extended Results of the Surveys," there are some interesting answers to open-ended questions about existing types of audio collections and the reasons why access is problematic. When survey respondents were asked what the major strengths were of their sound recording collections,

the results were eclectic and impressive. Most included local holdings of interest, and collections ranged from spoken word recordings of famous people, such as Carl Sandburg and several American presidents; anthropological and ethnographic recordings; to all genres of music, including some rare recordings and several cylinder collections (pp.24–26).

Access to materials can be problematic for several reasons, among the most common are playback equipment that is no longer available, inadequate or nonexistent bibliographic control, and the fragility of the materials. "Recorded sound depends on playback equipment for access, and the rapid development and obsolescence of recording formats and playback equipment have resulted in an unending progression of recorded sound that is stranded on superseded media" (Smith et al., 2004, p. 20). As new generations of students use campus libraries, their lack of experience with older formats can sometimes be amusing. "We're entertained that we have to show some students which way the cassette tape goes in the tape recorder and that it is two-sided. We have a record album (*Footloose* soundtrack) that we keep just to show our student workers what to do with the lone remaining record player" (Bergman, personal communication, May 26, 2009).

In the Smith, Allen, and Allen survey,

> Most respondents also identified original and significant collections held in academic units that were not part of the library. Few respondents claimed to have adequate bibliographical or inventory control over their audio assets. Most claimed that a significant portion of their holdings were "hidden." Nonetheless, and somewhat paradoxically, nearly all also claimed that the demand for access to audio was growing on their campuses. (2004, p. 11)

Indeed, audio resources continue to be a significant part of academic collections. Developments in improving sound recordings led to the first digital recordings in the late 1980s (Consumer Electronics Association, 2009), and presently, audio CDs and the digital mp3 formats are routine as libraries collect ebooks, podcasts, and other digital audio files. In the 2004 survey, "In some cases, staff noted not more demand per se, but an increased use of audio assets because Intranet access made them easier to use" (Smith et al., 2004, p. 13). In 2000, 73 percent of the media centers surveyed by Laskowski had audiocassettes in their collection (Laskowski, 2000), and the Association of Research Libraries statistics show a continued increase in the number of audio materials added to collections over the past decade (Association of Research Libraries, 1997–2008).

Audiovisual Formats

Sound/Slide and Filmstrip. While early filmstrips were silent, they became most popular for educational purposes after sound was added in the form of an LP record or cassette in the 1960s.

> Filmstrips were a cost effective alternative to expensive 16mm film projectors. The typical filmstrip had 30–50 images on a long spool of film and ran 10–20 minutes. A beep on the audio track cued the teacher to manually advance the film strip to the next frame. In an era when one had 2–4 channels on TV and movies generally played only in theaters, the film strip, as primitive as it sounds today, was often a welcome break from class lectures and drills. (Bertuca, 2009, 35mm Filmstrip section)

The baby boom generation will fondly remember filmstrips as part of their secondary school education.

> the teacher would have left her customary place at the front of the room to carry the heavy case up the center aisle. She would stop near the middle of the room, put the projector on someone's desk, then lower its little front feet. Next the filmstrip would emerge from its colored plastic case, a little gossamer spool of 35-mm film, like a strip of negatives from a camera. The teacher would feed the end of the strip into the projector, probably with some difficulty, past a maze of sprockets and gears. She then would flip some toggle switches, a fan would whir, and a diffused beam would splash onto the screen. (Gregory, 2004, p. 17)

Lowly filmstrips (and 35mm slide) have not received the recognition they deserve as the undoubted precursor to PowerPoint. They have the same type of display with the same resulting audience response after repeated usage. Developed shortly before the 1920s, filmstrips gained popularity throughout the subsequent decades. While probably most popular in school media centers, filmstrip collections also had a place in academic libraries with the increased emphasis on independent study as well as classroom instruction (Grove, 1975). It isn't long after the mid-70s that filmstrips begin their descent from a favored instructional media format.[2] The Laskowski survey reports that 33 percent of respondents still have filmstrips in their collections as late as 2000 (Laskowski, 2000, p. 24).

Similar to filmstrips, the sound/slide format became most popular in the 1960s-80s, and lent itself well to individualized instruction. There were variations on the format, as deg farrelly remembers:

> And when I did volunteer work at a local hospital nursing training center, that center had Bell & Howell "talking" slides. Each 2" slide fit into a plastic disc. Surrounding the slide was a magnetic ring that held the recorded audio. When the slide projected, the slide remained stable, but the audio ring spun. (d. farelly, personal communication, June 7, 2009)

The following photographs, taken at the University at Buffalo's Health Sciences Library new media center circa 1976, illustrate the slide equipment and shelving typically found in just about every media center from the 1970s through 1990s.

Sound/slide self-instructional workstation.

A typical library shelf filled with slide programs.

Film and Video. Grove (1975) includes a first-rate history of film in academic libraries, at least until the mid-1970s. Another fine article that refers to many of the works cited in this essay is *The Development of Feature Film Collections in Academic Libraries* by Patrick Carr (2002). While the focus is feature films, the history translates to the broader collecting of films of all types.

A group playing a sound/slide program.

Films were to be found on campuses in the 1920s, but mainly in audio visual centers and film centers separate from the library where the costly equipment and highly flammable nitrate film would be properly maintained (Brancolini, 2002). Even into the 1970s film collecting was not a widespread practice for libraries. With the advent of the library media center, and the slot load 16mm projector in the early 1970s, educational

A smaller size 16mm film reel and case.

film collections grew. In the Laskowski survey, 69 percent still considered 16mm film a major component of their collections (2000, p. 24). Brancolini (2002) provides a superb history of library collections touching on film as well as video. Through the masterful use of survey data, she covers the reasons why film and video formats began to be included in libraries in the late 1940s and 1950s, and continued to the mid-1970s. This approach is not often covered in other library histories and makes this an essential inclusion in library media center bibliographies.

The following story from Debra Jo Sujka of Ryerson College is a prime example of library media centers dealing with bulky, costly film equipment, as well as a great metaphor for the end of analog formats as we embrace digital convergence, and hence the title of this piece.

> First year film students think they know how to use all AV equipment. Here at Ryerson there is one theory film course that wanted students to analyze certain films frame-by-frame. To do that, they would use the Cinescan instead of a regular 16mm projector. (The Cinescan runs the projector light through a prism so you don't have to worry about burning the film if you stop.)
>
> A first year film student came in wanting to use the Cinescan. I asked and he assured me that he knew how to use the Cinescan. So I direct him to it and reminded him to use the same size of take-up reel as feed reel. After a few minutes, I no longer hear the motor whirling away. I have been at the job long enough to know the various sounds to expect from the various pieces of equipment and which ones (or lack thereof) meant trouble. So I walk back to the Cinescan and there is the student—in a panic. The film has become a ball of acetate between the feed and take-up reels. He is gingerly picking at it. In a loud voice I said, "Step away from the machine." I had to tell him 3 times before it registered that I was talking to him. (D. Sujka, personal communication, May 28, 2009)

The 1970s and early 80s saw a transition in video that is continuing today. Sony's U-matic system, based on ¾" tape, changed the course of videotape by introducing the first mass market videocassette in 1971. Educational programs were sold on U-matic tapes, and became part of most academic video collections. "Some priceless educational material was only released in one particular format such as ¾" U-matic. That is one reason why so many academic media centers still consider some of the older formats essential to their collection"(Laskowski, 2000, p. 24). In 1975, home video enters the market and the fierce format war between VHS and Betamax plays out during the 1980s. "Betamax's superior picture quality was defeated by VHS's longer playing times and cheaper tapes & equipment" (Bertuca, 2009, Betamax Videotape section). In the following photo, the U-matic tape on the left is in a smaller cassette than most, known as a U-matic S.

After 1980 the home video market exploded, and libraries began col-

"The Library of Congress facility in Culpeper, VA, holds thousands of its titles on U-matic video, as a means of providing access copies and proof for copyright deposit of old television broadcasts and films." (Wikipedia, "U-Matic," 2009)

lecting videos for circulation. "Libraries were presented with an exciting new opportunity. Video was not only new and popular, it was a library service developed from user demand. At the same time, home use of VHS and off-air taping opened up new opportunities for classroom teachers to offer audiovisual materials without the time consuming task of booking films and waiting for delivery" (Mason-Robinson, 1996, p. xi). Large screen video projection systems soon followed, and academic media centers made the transition to yet another media format.

A format with superior picture quality that never really took hold in academe or the home market was the videodisc. "In 1978, two years after the VHS VCR and four years before the compact disc (CD), the first laserdisc was released to the market in Atlanta, Georgia. Initially all analog in nature, the discs eventually evolved to include digital stereo sound" (Bertuca, 2009, 12" Laserdisc section). As the following testimonials illustrate, media librarians saw the value in collecting videodiscs even if the library clientele did not. Since academic library collections are there to support the teaching component of academe, and teaching faculty were not embracing the medium, it did not become an important format for media collection development.

Oksana Dykyj, head, Visual Media Resources at Concordia University in Montreal, describes her experiences with visual formats and provides a succinct overview of the transition from analog film to digital formats:

> My early experiences with media revolve around being a films studies
> student in the mid-1970s. We absolutely had to go to class to see the
> films; this was before commercially available video. You also had to be
> an excellent note taker in the dark while the film ran. Instructors did
> however use analytical projectors, like the Eike, which allowed them
> to stop on a frame, or to go at different speeds in reverse and then
> forward. These projectors were originally used to look at sports footage,
> but when tape came along they went out the way of the dodo bird. In
> film studies, in the 1980s instructors would typically show films in class
> either in 16mm or 35mmm and then show clips or do analysis on video
> (first Betamax and then VHS). Finally when laserdiscs came in the early
> to mid-1980s analysis was made easy with the CAV (Constant Angular
> Velocity) discs, which allowed for a frame-by-frame examination of the
> film. CLV (Constant Linear Velocity) discs did not; they were of course
> much cheaper. Then of course came DVDs and now Blu-rays. (O. Dykyj,
> personal communication, August 4, 2009)

Most academic libraries collected videodiscs, and 73 percent reported
they still had them in 2000. In fact, videodiscs were listed as one of the
top four formats currently collected at that time by survey respondents
(Laskowski, 2000, p.24). Yet, the following experience illustrates that even
with film purists they often did not make much impact:

> I've lived through the obsolescence of quite a few media formats, but
> the one that most readily comes to mind is the brief rise and fall of the
> laserdisc, which nonetheless served as a significant predecessor to many
> of the current digital reproduction formats. I began my career as a me-
> dia librarian at the College of Staten Island/CUNY in the mid-1980's,
> and I spent a good deal of time introducing educational technology
> into the curriculum with the aim of enhancing the teaching experi-
> ence for both student and instructor. In this commitment, I worked
> closely with two departments, the English, Speech &World Literature
> Department and the Cinema Studies program of the Performing and
> Creative Arts Department. The English department faculty was for the
> most part content with its VHS collection of literary film adaptations.
> The cinema folk, on the other hand, were professed "film purists," and,
> 35 mm reels being beyond the meager resources of the college at the
> time, they insisted at least on 16 mm film for their teaching ministra-
> tions. I was so caught up in this film/video controversy that I gave a
> talk at the New York Metropolitan Library Council, or Metro, on the
> comparative aesthetics of using film or video in the classroom.
>   Now when in 1984 the Criterion Collection made available a spe-
> cial laserdisc edition of *Citizen Kane,* I was determined to convert a
> few of the purists. I mounted a concerted campaign demonstrating
> to the skeptics the many ways the new medium could complement
> the teaching of film analysis and criticism. The laserdisc, I indicated,
> had in its full feature format (CAV) a higher horizontal resolution
> than VHS (which they'd refuse to use), and the functionality to freeze
> frame and to provide reverse, slow, and speeded motion, all so easily
> obtained. Moreover the laserdisc had the added unique advantage of
> allowing viewers to *randomly access* individual frames. Along with this,
> the audio was of superior quality, and multiple tracks were available
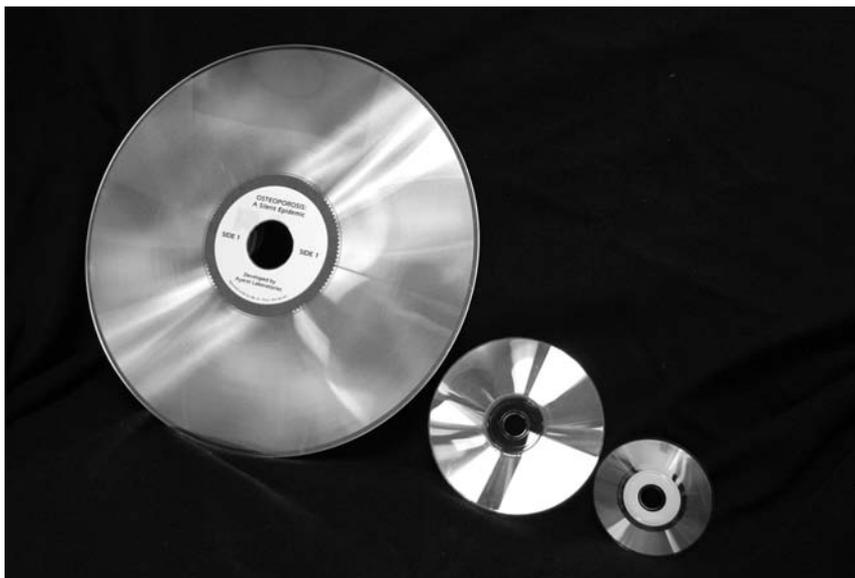
The center hole of a CD got its size from a dubbeltje, a Dutch 10-cent piece. The first CD produced was *The Visitors* by Abba. The first laserdisc title released in North America was *Jaws* in 1978; the last titles were *Sleepy Hollow* and *Bringing Out the Dead*, both in 2000 (Bertuca, 2009, Audio Compact Disc and 12" Laserdisc sections).

> for commentary from directors, cinematographers, and so on. (Can you get a DVD these days *without* these features?) Imagine then my astonishment when several weeks of gentle persuasion went for naught. The purists were not impressed! Were they Luddites pure and simple? Or perhaps they knew a far superior format was coming down the line, something less cumbersome. . . . (R. Adler, personal communication, June 15, 2009)

Video collections are once again changing rapidly. While most academic media collections still retain large VHS holdings, the format is all but obsolete for home use. It appears that academic libraries followed consumer trends, and DVDs are now the primary physical video format in academic collections. The Blu-ray DVD format, introduced in 2006, holds five times the data of traditional DVDs. They are not without problems of their own for instructional use circulating library collections, and they have a fairly short shelf life (ten years) (Bertuca, 2009, Blu-ray disc section). Oksana Dykyj explains some of the pratfalls involved in her experience with Blu-ray discs:

> The quality of the image is obviously great on a 1080p monitor or a high def video projector. But, if you want to show a 2-minute clip, it typically takes about 4 minutes to get to the clip because all the information is on the individual disc and the player is so slow at getting to where you

> want to go: It looks for updates, then loads, then searches, then you
> have a menu that is usually almost impossible to navigate, and you have
> to skip all the previews, then it loads again then you press play and it
> takes about 15 more seconds before you start the film. Did I mention
> that it's slow to load? No wonder academics want to circumvent the
> discs. Half the students would be out the door rather than wait for the
> great clip to finally show up. The absolute worst thing is if you press
> stop by mistake, you are obligated to start all over again, as if you just
> turned on the blasted machine. Yes, I have one at home and I curse a
> lot. (O. Dykyj, personal communication, August 4, 2009)

There are several resources both online and in print, that detail the development of digital media. To follow the market evolution of the DVD, a concise timeline is available from the Consumer Electronics Association (2009).

Format Obsolescence
In light of the rapid technological changes to media formats, it is instructive to ask: which of these media will be around in 10 years? 50 years? 150 years?

3.5" floppy drive (Introduced 1980)
- Less than 3% of computers sold today have a floppy drive. Expected data life: 5–6 years or less.

mp3 Player (Introduced 1998)
- All the rage now, but will Vorbis, WMA Pro, AAC, or ?? supersede it? Expected life of device: 3–5 years, but what does a 1-year warranty imply?

Flash Drive (Introduced 2000)
- USB ports are ubiquitous, for now. Expected life of data: 10 years (assuming you don't lose it.)

DVD-Blue Ray (Introduced 2006)
- Regular DVD format introduced less than 10 years ago. The descent to obsolescence has already begun. Expected life of data: 10-12 years

Printed book (9th century China wood block, 1140 CE moveable type)
- Expected life of data: 1,000 years

Shoe box of family photographs and computer hard drive
- Will your grandchildren be able to find any pictures of you? Photographs can last over 100 years depending on storage. Hard drives last 5–8 years at best (Bertuca, 2009, "Questions for the Future" section).

Preservation of content on various media formats is a major issue in librarianship today. It is much too large a topic to be addressed here, but since it does impact media collections, it is worth noting. The following

firsthand account of dealing with format obsolescence is a good example of what we all may encounter on a grander scale.

> Preservation/migration of non-print media is a noble and essential role of libraries and archives. But patrons and high-level officials/administrators don't care as much as we do (until a particular item they want isn't available). A personal story—I discovered that my uncle had appeared in a Wolf Trap Farm musical stage production that was taped and broadcast on PBS stations in 1978. The one WorldCat copy was an [*sic*] unviewable due to age (3/4" videotape cassette from off-air). PBS had only broadcast rights so none of the three PBS video archives in existence had a copy. The Tennessee Arts Foundation, which produced it, was out of business. Using all my librarian skills and a lot of time, I finally tracked down the producer who was working at a theater in NJ. Fortunately he had an unusual name or I likely would have never found him. He had a DVD that he sent me and I have now seeded this wonderful historical piece in a number of jazz archives throughout the country. Without my personal history, there is no question in my mind that this would have shortly been irrevocably lost. And this for a national-wide [*sic*] PBS broadcast of a performance at a most prominent venue. Scary. However, when you might have to shut down entire departments or schools, somehow saving a cassette tape of a 1980 seminar doesn't grab much attention. It's still our professional responsibility, of course, to be pro-active. But we might as well admit up front we can save only a fraction of history, especially digital history, given time and budget constraints, so we'd better be smart about setting priorities, and also admit not everything is worth saving. (A. B. Wagner, FW: [collib-l] article of interest [Electronic mailing list message] personal message from SUNYLA-L discussion list, May 26, 2009)

Library, government, and private research efforts are ongoing to preserve nonprint media.

> However, unless or until one common standard is found for the preservation and retrieval of materials in older formats, academic media centers will most likely continue to provide materials and support for a variety of formats. At the current time anyway the only alternative is to lose access to some great material that is not being re-released on newer formats. (Laskowski, 2000, p. 25)

Several of the personal contributions colleagues submitted to this piece held a sentiment that echoes this trend, "I wish I would have kept that machine."

Conclusion

Stepping back and looking at academic media collections, we can see how the wonderful, eclectic history of format changes has created a unique set of circumstances for media professionals. Currently, digital formats exist side by side with substantial collections of analog resources, but we now have to face the question: will resources accessible on-demand replace most physical media? Transitioning into the online world, the "digital

convergence" so often spoken about is occurring. Digital archives, insti-
tutional and discipline-specific repositories are becoming commonplace
not only for scholarly works traditionally in print format, but for audio
and video works as well, particularly in light of the need that responsibility
be assumed for archiving and preserving the varied content held in dif-
ferent media formats. Libraries are moving from traditional ownership to
access through various new acquisition models and licensing agreements.
The role of librarians to support instruction with appropriate nonprint
materials will continue no matter the format. Hence, the essence of me-
dia collection development continues to remain important, despite the
evolving mechanisms of delivery.

NOTES
All photographs copyright Health Sciences Library, University at Buffalo, State University
of New York.
1. Videolib is an electronic discussion list open to anyone who is interested in video collec-
   tions in libraries (American Library Association, n.d.).
2. To see what a filmstrip was like, enter "vintage filmstrip" in the Youtube.com search
   box.

REFERENCES
American Library Association. (n.d.). Video Round Table, Listservs. Retrieved October 28,
     2009, from http://ala.org/ala/mgrps/rts/vrt/professionalresources/vrtresources/
     videolistservs.cfm
Art Libraries Society of North America (ARLIS). (2006). *North American Lantern Slide Survey.*
     Retrieved October 28, 2009, from http://www.arlisna.org/nalss
Association of Research Libraries. (1997–2008). *ARL Statistics.* Retrieved October 28, 2009,
     from http://www.arl.org/stats/annualsurveys/arlstats/preveds.shtml
Bartleby.com. (2003). *Respectfully quoted: A dictionary of quotations requested from the Congressional
     Research Service.* Retrieved October 28, 2009, from http://www.bartleby.com/73/857
     .html
Bertuca, D. (2009). *Retro media: Memory (and memories) lost.* Retrieved October 28, 2009, from
     http://library.buffalo.edu/asl/exhibits/technology/retro-media.html
Bobinski, G. S. (2007). *Libraries and librarianship. Sixty years of challenge and change 1945–2005.*
     Lanham: Scarecrow Press.
Brancolini, K. (2002). Video collections in academic libraries. In G. Handman (Ed.), *Video
     collection development in multi-type libraries. A handbook.* (pp.47–75). Westport: Greenwood
     Press.
Butler, R. (1996, October). The development and demise of 8mm film loops in America. In
     R. Griffin (Ed.), *VisionQuest: journeys toward visual literacy. Selected readings from the Annual
     Conference of the International Visual Literacy Association* (28th, Cheyenne, Wyoming) (pp.
     191–196). (ERIC Document Reproduction Service No. ED408967)
Carr, P. (2002). The development of feature film collections in academic libraries. *Current
     Studies in Librarianship, 26*(1/2), 39–51.
Chisholm, M. (Ed.). (1975). *Reader in media, technology and libraries.* Englewood: Microcard
     Editions Books.
Consumer Electronics Association. (2009). *Digital America.* Retrieved October 28, 2009, from
     http://www.ce.org/Press/CEA_Pubs/929.asp
Gregory, D. (2004). *Change your underwear twice a week: lessons from the golden age of classroom
     filmstrips.* New York: Artisan, a division of Workman Publishing.
Grove, P. (Ed.). (1975). *Nonprint media in academic libraries.* Chicago: American Library As-
     sociation.
Imre, A., & Cox, E. (2009, March). Are we on the right track? Issues with LP record collections
     in U.S. academic libraries. *Notes, 65*(3), 475–486.

Irvine, B. (1979). *Slide libraries. A guide for academic institutions, museums, and special collections.* Littleton: Libraries Unlimited.

Laskowski, M. S. (2000). The academic media center: Where we've been, where we are, and where we are going. *College & University Media Review, 7*(1), 21–40.

Loucks-DiMatteo, A. R. (1985). The history of media librarianship: A chronology. In J. Ellison (Ed.), *Media Librarianship* (pp.72–89). New York: Neal-Schuman Publishers.

MacQuarrie, R., Gu, Y., Guerra, E., Corredor, N., & Hill, W. (2000). *The history of recorded music.* Retrieved October 28, 2009, from http://www.soc.duke.edu/~s142tm01/history.html

Mason-Robinson, S. (1996). *Developing and managing video collections: A how-to-do-it manual for librarians.* New York: Neal-Schuman Publishers.

McKeever. (2004). *A brief history of slide projectors.* Retrieved October 28, 2009, from http://www.kodak.com/eknec/documents/a6/0900688a807890a6/history.pdf

Nolan, J. L. (1961). Audio-Visual materials. *Library Trends, 10*(2), 261–272.

Schwartz, J. (2008, April 22). The body in depth. *New York Times* [online version]. Retrieved October 17, 2009, from http://www.nytimes.com/2008/04/22/science/22bass.html?pagewanted=1&ei=5087&em&en=4a6e8113b82be3ac&ex=1209096000

Smith, A., Allen, D.R., & Allen, K. (2004). *Survey of the state of audio collections in academic libraries.* Washington DC: Council on Library and Information Resources.

Snow, M. (2002). "Visual copy" collections in American institutions. *Art Documentation, 21*(2), 4–7.

Snow, M. (2004). Learning from lantern slides, 1979–2004: A twenty-five year reminiscence. *VRA Bulletin, 31*(1), 45–50.

Stauderman, S. (2007). *Pictorial guide to sound recording media.* Retrieved October 28, 2009, from http://www.arl.org/preserv/sound_savings_proceedings/Pictorial_guide.shtml

Widzinski, L. (2001). The evolution of media librarianship: A tangled history of change and constancy. *Simile 1*(3), 1–11.

Wikipedia. (n.d.). *View-Master.* Retrieved October 29, 2009, from http://en.wikipedia.org/wiki/View-master

Wikipedia. (2009). *U-matic.* Retrieved October 28, 2009, from http://en.wikipedia.org/wiki/U-matic

Witcombe, C. (2001). *Art history and technology. A brief history.* Retrieved October 29, 2009, from http://witcombe.sbc.edu/arth-technology/arth-technology5.html

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