Moving Image Preservation in Libraries

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Abstract

Within the confines of special collections in libraries, an established practice of preservation for film and video collections is largely nonexistent. By comparison, the scale of resources needed to achieve meaningful programmatic efforts to preserve them is far greater than the resources libraries have assembled for traditional paper-based preservation. Management of moving image collections requires specialized knowledge and expertise. Consequently, while a mature system of preservation technology and methodology exists in libraries today to achieve the systematic preservation of books and paper-based materials, preservation programs generally have excluded the same provisions to sustain the useable life of moving image materials. With this in mind, this article seeks to articulate the current landscape of film and video preservation in libraries and examine the barriers that have hindered the development of full-fledged preservation programs for them. It is unclear whether traditional library preservation constructs can effectively inform the development of techniques and methodologies appropriate to film and video preservation. Nevertheless, it is perhaps more important, at this point in time, to stimulate and encourage fruitful discussion that will lead to such development.

A Sleeping Giant in Libraries

The motion picture industry, film archives, and other cultural repositories with moving image materials have been concerned and active in moving image preservation for many years. Even before 1950, it was clear that the cellulose nitrate film used for motion pictures was extremely unstable, and many films were transferred to a cellulose acetate film base to

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save their content. When that medium proved to be unstable as well, more transfers were conducted using polyester film. The Library of Congress, Museum of Modern Art, the George Eastman House, Universal Studios, and many other institutions and film archives have long been conscious of the fragility of film, aware of its importance as a record of human culture, and active in their efforts to preserve film collections. Analog video formats, including television broadcasting, present serious preservation problems as well as film and are held in many cultural repositories. In fact, libraries—the focus of this article—often have larger video collections than motion picture film. Here, too, efforts to preserve these materials have been ongoing for decades, albeit with a dissimilar approach to preservation than generally practiced within libraries.

The history and evolution of these efforts are recorded in the literature of the moving image profession alongside, although largely outside, the literature of the library community. The evolution of motion picture film restoration has occurred almost in tandem with a similar history of book and paper preservation in libraries. Until recently, though, there has been little crossover between these two groups about the means of preservation, even though both share common concerns about the disappearance of their valued film collections. No doubt, interesting parallels abound between the histories of the preservation efforts within these two groups, and it is likely that there are valuable opportunities to work collaboratively to rescue this medium that has so captured popular attention and so influenced cultures worldwide. Though preservation in libraries has focused more on the written word over the years, our culture has embraced moving image technology, and the importance of film and video in recording our history must be recognized. Truly, one cannot discount Ralph Sargent's statement in the documentary *Keepers of the Frame* (Gitsch and McLaughlin, 1999) that "there is no more thorough a document of who we are than the motion picture." Yet, collectively speaking, the unfortunate truth is that film and video materials held in most libraries nationwide have languished with limited, if any, resources dedicated to their preservation.

While the resources currently devoted to moving image preservation in libraries are clearly inadequate, it is important to dispel any idea that the field of moving image preservation is in an embryonic stage. Even though it is in its nascency in libraries, it has captured the attention of many film archivists for some time. Mann (2001) reports that

> [i]n the decades spanning 1967 to 1977, moving image preservation gained a national platform for the first time. This platform was made possible through the creation of the American Film Institute (AFI). . . . In the first decade of its existence, the AFI played a major role in determining how moving image preservation would operate in the United States for the remainder of the twentieth century. The AFI did not accomplish this monumental task in a vacuum; changing values and

> priorities in the larger culture industry helped to stimulate a national moving image consciousness. (p.4)

Within the culture industry, however, libraries have been slow to address the preservation of these complex, machine-dependent formats of film and video, and it is the purpose of this article to examine the circumstances of their befuddlement and to elucidate constructively the problems inherent in fully taking on moving image preservation vis-à-vis the longstanding focus already in place in libraries to preserve book collections. This examination seeks to articulate the current landscape of preservation of moving images in libraries and archives and identify the major impediments these repositories face in developing preservation programs similar to those that exist for books and paper-based collections. When exposed and understood, these patterns of neglect and their underlying causes, in comparison to other preservation efforts, may signal a viable course of action to redress the woefully inadequate attention paid to these valuable cultural materials and permit a more promising future for these special collections.

The Current Landscape

There are practical reasons why libraries have not achieved methods of preservation for film and video collections that are comparable to those achieved in the book and paper area. One major obstacle has been the lack of an infrastructure to manage ongoing preservation efforts for these media. Banks (2000) recognized that, "[t]he imperative of frequent active intervention" for moving image collections "place managerial and economic demands on libraries and archives that are quite without precedent, and whose dimensions are only beginning to be realized" (p. 324). More recently, Gracy and Cloonan (in press) acknowledge the same in a forthcoming publication meant to serve as a "sort of moving image preservation primer to librarians and archivists. . ." (p. 4). Here, they attribute "the unfortunate state of moving image preservation in most cultural institutions to a combination of several factors: a lack of appropriate equipment needed to inspect and view such material, a lack of qualified personnel to care for and maintain both the materials and the equipment, limited resources for engaging in moving image preservation and reformatting activities, and an absence of sufficient description of these materials (outside of title information in an institution's catalog)" (Gracy & Cloonan, in press, p. 3). In libraries, specifically, the lack of qualified personnel is even more substantial than implied in the preceding statement. There is a lack of technical skills and serious gaps exist among library professionals in their basic understanding of film and video history, as well as in their grasp of the various moving image production technologies. The overarching absence of the knowledge and experience needed to inventory and analyze the condition and needs of moving image collections paralyzes libraries and stymies efforts to organize and build ongoing preservation programs to care for these time-sensitive mate-

rials. Under these pressures—time, skill and scarce resources—it is understandable that libraries would be overwhelmed and daunted at the prospect of taking on the preservation of these additional materials. And, given the highly technical nature of moving image materials, no foundation for film and video preservation can develop in such a void.

Like unwanted stepchildren, a whole community of the past is packed away, out of sight—if not literally, then figuratively—by nonexistent resources for their care. Given the value and historic significance of film and video collections, it is difficult to reconcile such neglect. It is hard to imagine that any historian or librarian would not recognize the importance of such a pervasive medium. Could it be, simply that, on a practical level, films and videos compete mightily alongside books for scarce preservation resources in libraries? Books are a primary commodity in libraries and have been for centuries. And, the intent to preserve them is just as long-standing. Within the modern library profession, as Higginbotham's (1990) research proved, preserving book collections dates as far back as the library profession itself in the United States (p. 4). Her book begins with the founding of the American Library Association in 1876 when preservation was already a frequent topic of discussion recorded in meeting minutes and in professional journals in the nineteenth century. In the last thirty years, a programmatic approach to preservation has matured rapidly and book and paper preservation is now a recognized component in library service. Even in the blizzard of digital technology that surrounds us, books are still the most heavily used materials within a library and, in a research and academic library setting, book collections are critical to a library's *raison d'être:* to provide research support for faculty and scholars, as well as doctoral, graduate, and undergraduate students. Society's dependence on the book to convey information may be changing, but the decomposition of millions and millions of books held nationally and internationally in research libraries continues to present an overwhelming threat and rising costs. Unable to fully cope with book preservation, libraries, unsurprisingly, have not produced equivalent systems of preservation for motion picture film and video collections.

Furthermore, film and video formats are varied, and they exist as composites of materials in many different shapes and sizes generally unfamiliar to librarians. If that is not off-putting enough, they also require specialized equipment and someone with the technical know-how to operate it: "No other art is so tied to machines" (Mast & Kawin, 1996, p. 7). Thus, when libraries first began to acquire and build film, video, and sound collections on a large scale, a specialty within librarianship developed to provide access to them. In those early years, libraries appointed audiovisual librarians to manage these materials and keep them accessible. However, these positions rarely included preservation responsibilities *per se,* although many audiovisual librarians did perform those functions without a formal mandate or program support.

Obstacles to Overcome

The impulse to preserve any kind of artifact proceeds from the value assigned to the object or its content. That value is tightly bound to the artifact's unique attributes and scarcity. Thus, in libraries, the preservation of rare books vs. those held in general collections follows different treatment paths. Likewise, moving image collections divide into two distinct types: collections of one-of-a-kind, genuinely unique materials, and collections produced in multiple copies and held by multiple libraries primarily to support the specific needs of their constituencies much the way book collections do. In effect, both types of moving image collections are likely to wind up in "special" or "specialized" collections in libraries simply by virtue of their format and their need for special playback equipment. However, it is important to be mindful of them as separate entities because the preservation treatments for these two categories of moving image materials differ in relation to their uniqueness and accessibility.

With that understanding, the longevity of unique copies of moving image materials, like rare books and manuscripts, is inherently more threatened because they cannot be replaced. They exist in one iteration and, as collections, often reflect a broad history of formats, including those that evolved since the early production of motion pictures in the 1890s (there were many, many competing technologies in the early decades of film), through the early stages of experimental video production starting in 1956, and extending into the ever-changing present day when moving images are also being produced in digital formats.

In some instances a virtual riot of multiple moving image formats exist within a single collection. Furthermore, it can be difficult to identify with any certainty what is visually contained on the media because 1. often older playback equipment needed to view the early formats no longer exists onsite, or, 2. the condition of a single, unique film or video makes it too fragile to handle except by an expert with specialized equipment. Many curators and archivists wisely choose to wait until items can be copied before allowing access to them. Indeed, the fragile ones may very well have only one single playback left before loss of content occurs. As a result, handling is avoided, proper cataloging cannot be produced, and, in some cases, only the curator of a moving image collection knows the materials' exact content.

In addition to competing against book collections, there are other, more fundamental reasons that moving image preservation receives only marginal consideration in research libraries. As mentioned above, there is an absence of experience and expertise resident in libraries to preserve these collections, and no network of standards or guidelines exists to point the way toward recommended practices. There are no organized management systems specifically designed to maintain and protect film and video collections and, unfortunately, the traditional preservation principles and methodologies that libraries have relied upon for books and paper do not

transfer easily to film and related formats. Exorbitantly high costs associated with the methods used to preserve films and videos compound the seriousness of the problem, and scarce resources in most library budgets to pay for these processes acts as a strong deterrent to progress. Given these conditions, it is obvious why strategies for moving image preservation in libraries have not developed.

Advances in Education and Training

While all of the above reasons conspire to form a dismal landscape, the challenges they present are not new to cultural institutions. In a spirited and inspiring call to action, Darling and Ogden (1981) identified a similar sense of urgency in research libraries faced with staggering numbers of deteriorating books and an equally daunting mountain of perceived obstacles. Their article, aptly entitled "Creativity vs. Despair," also depicts a dismal landscape. Yet, over time, professionals were educated, ethics and standards devised and scientifically tested, and programmatic structures developed. In fact, library literature is replete with evidence of this development.

Harking back to the early days of book and paper preservation in libraries, Banks (1981) cited existing "gulfs in knowledge and experience" in the development of book conservation in libraries and suggested that the problem might be redressed through an "engineering" or "systems approach" that he depicted as follows:

> (1) a thorough analysis of the problem in question in the widest possible context; (2) design of a system to meet as nearly as possible the specific criteria identified in (1); (3) a search for necessary existing methods, materials, and equipment from other fields, if necessary; (4) and attempt, if necessary to have materials or equipment manufactured for the system designed; and (5) the making of any necessary alterations or compromises in an ideal system as dictated by (3) and (4). (p. 194)

The same suggestion applies handily to the need for a systematic approach to preservation for moving images today and, indeed, twenty years later Banks (2000), a consummate ambassador for preservation, updated his earlier observation (repeated, here, for the second time) when he aptly noted that audiovisual materials "place managerial and economic demands on libraries and archives that are quite without precedent" (p. 324). The key word in this statement is "managerial," and Banks wisely recognizes that a management construct is the preemptive step before "economic" demands can be addressed.

Just as systems of management support today's traditional preservation programs, systems of management must be developed to support parallel programs for moving image materials. The infrastructure that enables book preservation was built by trained professionals who agreed upon the processes and procedures required to achieve their goals and developed a foun-

dation of ethics and scientifically sound standards that, in turn, effectively addressed economic demands by fostering the credibility essential to raise funds. A solid administrative infrastructure for moving image preservation requires a cadre of professional experts trained specifically in film and video preservation methodologies to, likewise, develop ethical principles and scientifically tested, reliable standards to carry out their work. The first rung of the ladder is professional development. Without it, an infrastructure cannot be established, achievable preservation goals cannot move forward, and the moving image materials held in hundreds of special collections nationwide will continue to derive scant attention from the libraries and archives that collected them, even if funding was not an issue. Clearly, Banks knew this from past experience.

Prior to the degree-granting preservation and conservation program for books and paper, founded by Paul Banks at Columbia University's School of Library Science, the emergence of book preservation as a profession within the library community evolved slowly. In an article published in 1981, entitled "Education in Library Conservation," Banks recognized that, historically, "neither master nor apprentice often had the opportunity to study the conspicuously sound structures of early bindings . . . [thus] the technical challenges of binding, restoring and preserving new materials . . . soon went beyond the purely empirical ability of traditionally trained craftsman to solve" (p. 190). Furthermore, he observed, "Not only are empirical solutions no longer adequate . . . but the scale of preservation problems has escalated far beyond the ability of older, craft-oriented techniques alone to solve" (Banks, 1981, p. 190).

The same observations could easily be made in the realm of moving image preservation. In the early stages of film preservation efforts, much of the training and expertise was derived through on-the-job training. Borrowing Banks's words, "the scale of preservation problems has escalated" in this realm, too, well beyond what on-the-job training can solve. Later, early film practitioners obtained training through workshops, seminars, and occasionally short courses, all of which were offered only intermittently (Lukow, 2000, pp. 134–147). Most recently, Lukow (2001) says he observed firsthand, in his role at UCLA's Film and Television Archive, that college and university students were "creating their own concurrent or cross-disciplinary degrees by combining courses of study in film and television history, library science, or information studies" (p. 15).

There is a latent triangle of similarities underlying the professional development in the preservation fields of art, book, and now moving image preservation that is worth noting and may be useful to future research. Banks's (1981) article on conservation education in libraries culminates in a description of the emergence of the degree-granting program he founded for preservation and conservation of books at Columbia Univer-

sity (now at the University of Texas, at Austin). There he draws the readers' attention to a similar pattern of professional development within the art conservation community. In the 1950s, the art conservation community established several organizations for practicing conservators within which they could meet and exchange information about ethics and advance professionalism within their field (Banks, 1981, p. 191). Ten years later, in 1960, the first university-based, degree-granting program for art conservation was established at New York University with funding from the Rockefeller Foundation.

According to Lukow (2000), the establishment of a master's degree program at the University of East Anglia in 1990 "and the appearance shortly thereafter of its first graduates on the job market opened many eyes to a new sense of the possible" (p. 138). It took ten years to effectively realize "the possible" in the United States, but this year the University of California, at Los Angeles, (UCLA) established a Moving Image Archive Studies Program, a graduate-level program jointly administered by UCLA's Department of Film, Television, and Digital Media and the Department of Information Studies. With support from federal grant agencies and foundations to develop and begin the program, the first class of ten students was admitted in fall 2002. On the east coast, New York University's Tisch School of the Arts will launch a new master's degree program, Moving Image Archiving and Preservation, in fall 2003. Together, these two programs represent the only two university degree-granting programs for moving image preservation in the United States. Both programs seek to address the need for history, social context, and theory, beyond the practical, hands-on aspects of film and video preservation.

Nonuniversity training programs, such as the George Eastman House School of Film Preservation established in 1996, along with internships, apprenticeships, and short-term courses, continue to be offered, but the need for university-based education is essential to the development of the profession itself. Similar to the professionalization of book and paper preservation in libraries, and art conservation before it, professionalization of moving image preservation will foster the development of shared ethics and scientific testing, resulting in much needed standards and practical guidelines essential to the widespread acceptance of the processes and procedures needed to support moving image preservation on a national and international scale. Professional development is an essential component in the basic infrastructure needed to propel film and video preservation forward in libraries and, although inchoative developmentally, the emerging trend toward university-based programs signals progress. It will take time and require considerable support, but its importance as an essential step in building responsible and reliable preservation programs for moving images cannot be underestimated.

Preservation Paradigms and Principles

Until the professional schools produce a cadre of specialists with the training needed to develop standard preservation practices for moving images, libraries must look elsewhere for effective program models. Where these models are borrowed from may critically influence the direction and success of future preservation initiatives and must be carefully chosen. Given these circumstances, Gracy and Cloonan (in press) are in agreement with the idea expressed here that moving image preservation finds a "parallel history" in "the preservation movement for paper-based library and archival holdings," and, thus, they reason that "because moving image preservation is tied to the larger cultural heritage movement, it has certain similarities in terminology and practice with other preservation traditions in libraries, museums, and archives" (p. 5). Furthermore, they suggest that other preservation traditions provide "an exemplar of how a concept such as preservation can be re-shaped to fit the needs of a particular group" (Gracy & Cloonan, in press, p. 5). Following this line of reasoning, a logical paradigm for future moving image preservation initiatives may exist in the management systems that support book preservation traditions in libraries, if not prescriptively, then perhaps in form and principle. A brief rationale for a programmatic approach to moving image preservation that draws upon book preservation practices follows.

A Programmatic Approach

Any conversation regarding programmatic constructs for moving image preservation must first embrace the recommendations brought forth in the National Film Preservation Board's (1994) *Redefining Film Preservation: A National Plan*. Their plan calls for program development based on a balanced approach with an emphasis on storage conditions that "extend the useful life of films, including those in the early states of deterioration," counterpoised with "selective duplication and restoration" programs (National Film Preservation Board, 1994, 13). This idea dovetails nicely with the comprehensive, programmatic approach that has come to define most preservation programs in libraries. The comprehensive approach is probably best described by Morrow (2000) in "Defining the Library Preservation Program," where, in addition to single item treatment, she emphasizes that "all library materials will benefit from umbrella preservation programs designed to protect them from extremes of temperature and humidity, prepare for emergencies, provide a proper storage environment, actively discourage theft and mutilation, and encourage proper handling and use" (pp. 11–12). In other words, a comprehensive preservation program includes a range of treatment options designed to provide realistic alternatives appropriate to the spectrum of objectives within an institution's overarching preservation goals. Ideally, these treatment choices are supported by a rational decision-making scheme developed in conjunction with a

condition assessment, use and handling patterns, and full recognition of the financial constraints of the institution.

Existing Preservation Models

In the realm of book and paper materials, preservation administration in libraries and archives seeks to organize and manage the retention of the repository's collection for the long-term research and information needs of their constituents. This has always been more difficult for archive and special collection materials because of artifactual and unique attributes that must be preserved in their original format. The preservation of these materials are managed in two ways: 1. through reactive systems involving a range of conservation treatment methods; or, 2. through proactive systems involving preventive methods, such as carefully constructed storage environments and limited handling. Most circulating collections in research libraries are managed differently because they are largely redundant; that is, the book collections which comprise the bulk of their materials are available in multiple copies in multiple institutions. While the traditional preservation approach for these collections has been to retain original copies, when that is not possible the best alternatives are to replace an item with a new copy if it is still in print; or, when replacement is not possible, provide conservation treatments to strengthen and stabilize the item; or, if the text block and paper will not sustain conservation treatment, as a last resort, the textual information from the original copy may be transferred or reformatted onto a more stable, longer-lasting substrate, such as acid-free, permanent paper, or microfilm. Finally, if none of the above are possible (physically or financially) a protective enclosure will consolidate the item and diminish further damage from use and handling.

One of the strongest principles of library preservation demands that the information contained in an original book or document be preserved without alteration. This extends to physical elements as well as content. Nowhere is this taken more seriously as in the case of rare books and special collections where the container of the information, including the binding, text block, paper, typography, and the text itself, have attributes essential to the cultural value of the item. The science of library conservation permits sound methods to preserve these artifactually valuable attributes.

The goals and objectives of moving image preservation in libraries are likely to follow a similar strategy insofar as it must employ both active methods of film restoration and reconstruction, as well as proactive methods of proper storage and handling. In this respect, the national plan, as expressed in *Redefining Film Preservation,* provides the beginnings of a solid construct for a balanced, comprehensive approach to film preservation. Exploiting the benefits of cold storage and applying proactive methods to lengthen the life of any collection of cultural materials is highly effective. The science of cold storage is well established for film, and the rationale needs little

beyond the development of guidelines to achieve uniform application among other cultural institutions. But cold storage satisfies only one side of the equation for a balanced approach to film preservation. The other programmatic component needed to balance out a preservation program involves a system of selectively copying moving images, and the methodology to support this side of the equation is, as yet, underdeveloped. It is on this side of the equation that the idea, introduced by Gracy and Cloonan (in press), of "reshaping" other cultural preservation programs to fit the needs of moving image materials reveals the problems of an imperfect fit.

Reshaping Library Reformatting Methods

It is tempting to proceed with the line of thinking that existing duplication practices for book preservation may provide an adaptable methodology for motion picture film and video, but close inspection casts doubt on that idea. Beginning with terminology, the concept and context of duplication becomes confused and falters in translation between book and paper preservation vs. moving image preservation. For example, in film preservation parlance, "restoration" is a process used to restore visual quality to images where optical losses have occurred and "reconstruction" refers to a process of returning the narrative sequence, or scenes of the film, back to its original sequential structure (Read & Meyer, 2000, p. 70). In both cases, these activities are performed in a duplication process that succeeds when a preservable copy of the original is produced—confusing to the book conservator, whose application of these terms in book preservation represents treatment procedures meant to restore an item to its original state, rather than produce a copy. But, unlike books and paper documents, films are projected and viewed. The new medium must faithfully reproduce continuous images but, in most cases, need not actually be the original. In order to revivify a damaged or deteriorated film, the sequence of frames must be copied or transferred to another film base where they can be safely stored.

Mechanics of Film Production that Affect Preservation

Beyond issues of terminology, the process of duplication, as it relates to motion picture film (and video), does not easily translate from prevailing book preservation practices for mechanical reasons. Acceding to the idea that the reformatting of books to preserve content—in other words, microfilming or photocopying—correlates with the duplication of moving images to preserve content, the critical question is whether the programmatic procedures involved in one will suffice for the other. Below appear a few straightforward reasons why some of the principles and programmatic structures that support reformatting of books and documents do not correlate conveniently to moving image materials. In any conversation, citing the vast differences be-

tween the technology of the book and the technology of film itself merely states the obvious; but, considered within the context of reformatting, the complexities between the two technologies appear in *alto-relievo*.

To add clarity to this point, it is useful to briefly enumerate the complex technical aspects of motion picture film as presented in various places in film literature but most comprehensively throughout the text of *Restoration of Motion Picture Film* (Read and Myer, 2000). In addition to the various cellulosic film bases used over the years as carriers of moving images—in other words, nitrate and acetate in its various forms—films can be found in numerous widths, or gauges (70mm, 35mm, 16mm, 8mm, Super8, and more) with various sprocket, or perforation, dimensions for which the "pitch," or distance between sprocket holes, varies. When filmmaking became a profitable industry, these kinds of film elements were eventually standardized by the motion picture film industry. Nevertheless, libraries have collections that exhibit a range of these elements and, in fact, are more likely to contain film produced outside of the movie industry and their standards. Thus, in theory, library collections are more likely to exhibit a high variety of film formats.

Fortunately, film history is well recorded in the literature and documents the complexities and variations in film technology that emerged over the years since 1895 to provide moving images. First came motion pictures without sound, then with sound—first recorded on discs, then magnetically or optically recorded, then formatted with stereophonic sound. Films were first produced in black and white, then color was added, initially using a stenciling method, then using additive or subtractive color separations, followed by Technicolor in the 1930s and Cinecolor. A number of other separation technologies followed, culminating in a system that combines three color layers into one sandwich using a negative-positive system, or sometimes a direct positive (reversal) system (Read & Meyer, 2000, p. 43).

Simplistically summarized, motion picture film can be found on a variety of film bases in a multitude of gauges with various sprocket dimensions. It may be found in black and white, or color, and with or without sound. The various elements used to make a motion picture film complicate the restoration and reconstruction process, but the complexity does not end here because, of course, film must be projected in order to be viewed.

On the projection side, each element of film production has to work in tandem with a system capable of projecting it. Film rates measured in frames per second were used to record continuous images in the filming process that, in turn, had to be synchronized with the speeds of the projection system used to exhibit it. Synchronization extended as well to the sound and the color systems used in the film. Furthermore, projection techniques involved aspect ratios and image areas that also changed over time, initially from full-image projection, to an early industry "standard" format, to widescreen formats (including anamorphic formats, such as Cinemascope), and flat widescreen formats like letter box. In a documentary about film preser-

vation entitled *Keepers of the Frame* (Gitsch and McLaughlin, 1999), John Harvey, film enthusiast, testifies to the complexities involved in film projection when he describes the five-man projection system typically required to project Cinemascope!

In total, all of the technical elements of motion picture film referenced above combine to make reformatting, or duplicating, a very complex endeavor that requires far more technical experience and well-informed decision-making skills than is entailed in reformatting books. The fixed nature of the book drastically simplifies the duplication process. Indeed, in the book-bound library setting, the amount of technical knowledge required in order to mount successful motion picture film transfers is quite daunting.

Equally daunting is the technical knowledge required to mount successful transfers of video formats. Unfortunately, the problems encountered in video reproduction and preservation are just as troublesome and require the same, if not more immediate, attention as those encountered in motion picture film. Video formats and playback equipment are equally diverse and, even more so than motion picture film, present a formidable preservation problem because they are less stable over time and because duplication choices for video are less reliable as preservation formats. Whereas moving images recorded on chemically unstable nitrate and acetate film bases can be transferred to a chemically stable polyester film base, the current hunt to identify transfer media to preserve early video materials remains frustrating and problematic. In addition, obsolescence of the playback equipment is a greater problem for video formats and digitally produced moving images than motion picture film.

In addition to the mechanical difficulties that accompany the reformatting of moving image materials, the intellectual part of the preservation process, such as selection methodologies and content-related issues, raises other concerns. These concerns are invoked when existing copies of a film vary due to an editing process that may have combined scenes differently for different audiences, or when reconstruction of the content is necessary because parts of the film are too damaged to view. In this respect, duplication processes and procedures raise serious ethical issues that, in some ways, may coincide with established ethical structures followed in book preservation in principle but, perhaps, not in practice.

Because there is no other preservation choice, the decision-making applied to the process of film and video duplication is especially critical for moving image preservation purposes. "Since restoration can alter the quality of an image considerably, it is important to keep in mind that both activities, restoration and reconstruction, are subject to an ethics of restoration" (Read & Meyer, 2000, p. 69). Edmunson (1995) cautions that

> The very nature of AV media gives rise to peculiar ethical issues. For example, when a film is copied for preservation from a deteriorating

> base to a new one, the process—however scientific or exact—always involves subjective artistic and technical choices in which the manipulation or loss of some of the image and sonic content are available options. The loss of screen or sound quality is in effect the loss of information—the equivalent of removing vital pages from a book. (p. 251)

The film archives profession is currently wrestling with a broad array of ethical and standards issues, often hotly debated in their literature and listservs. Library preservation professionals must enter this debate and, presumably, reckon with the compromises necessary to adjust their experience reformatting paper-based materials to the properties and nuances of film and video. Opportunities for communication between these two professional groups are relatively scarce, and library administrators and funding agencies would assist the progress of moving image preservation greatly by stimulating opportunities for exchange between these two groups. One obvious way to achieve this is to fund attendance at professional meetings.

Conclusion

Most research libraries have well-established, even robust infrastructures for book and paper preservation and conservation, and the idea of simply replicating them to accommodate moving image materials, or absorbing film and video materials into current programmatic workflow, is conceivable in the former case, tempting in the latter case, but seems implausible in both cases. Without the requisite training, few preservation librarians would find it possible to initiate and responsibly administer programs for these dramatically different formats. In order to do so would require learning a whole new set of technologies.

In addition, a well-founded preservation program for moving images requires the development of a set of professional standards and ethics to support this work. Currently, there are none that have been properly vetted or professionally agreed upon specifically for library intents and purposes. Choices must be articulated and the pros and cons of those choices must be debated. Unfortunately, the questions that need to be posed and argued have not yet been asked, let alone answered. This process must proceed before standards and ethics eventually form the basis of a systematic preservation effort.

As libraries wait for the newly established professional schools to prepare the specialized personnel needed to direct moving image preservation programs, the fundamental question for them is, can they borrow from, or "re-shape," existing preservation practices, as Gracy and Cloonan (in press) suggest, either in whole or in part? Or does moving image preservation call for a new, separately defined set of goals and objectives? The comparison to book preservation presented above does present a useful and convenient point to begin a course of inquiry. At the very least, it is probable that the

spirit and intent of existing preservation principles found in typical book preservation efforts can be translated to moving image materials. Beyond that, however, compromises will likely be needed. Much research and examination within the preservation community is needed to explore the programmatic models appropriate to moving image preservation before it can take its rightful place in the library setting.

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