

GLOBAL BEST PRACTICES IN FILM ARCHIVES MANAGEMENT AND SERVICES: LESSON FOR NIGERIA

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Abstract

Vital information resources required for education, enlightenment and decision-making are contained in films. In view of its composition and chemical make-up, film as an information container requires special care and attention if the information residing in it is to endure for a long time to serve its purpose. There exist international best practices in the management of film which have been developed over the years. This paper makes an exploration of the global standards in film preservation, paying particular attention to the efforts of film archives and organizations around the world in setting standards for film management. These standards are considered in key areas of film management like film handling, storage, cataloguing and access. Finally, the paper enjoins developing countries like Nigeria to avail themselves of these global standards in film management in order to ensure the survival of information resources in film format.

Introduction

Although paper remains the most popular medium of information recording, quite a huge volume of valuable information resources are found in other media. Audiovisual materials, particularly film, constitute an important category of information resources in libraries and archives. In a country like Nigeria, many landmark events are recorded in films which are kept as records of historical and cultural value. In some institutions and organizations, films are also records of continuing value. Besides, a lot of documentaries, traditions, stories, people and places are captured in films and they constitute the collective memory of the nation. Their management and preservation, therefore, constitute a critical issue which heritage institutions, cultural organizations and other stakeholders need to seriously address in order to enlarge their useful life span.

Evolution of Film

The first practical use of flexible transparent film was said to have been pioneered by Eastman Kodak in 1889 (Messier, 1993). The film which was nitrate-based was highly inflammable and could easily curl. By 1903, there was an improvement in the film through a thicker base and a gelatin coating on both sides. This was aimed at reducing curl and slowing down the rate of decomposition of the film base and, consequently, making film less flammable. The danger of fire disaster associated with nitrate film led to the concern for safety film and the introduction of cellulose acetate film in 1923. This, in turn, was replaced by cellulose diacetate film in 1937. The problem of shrinkage, discoloration and progressive embrittlement associated with diacetate film led to the introduction of cellulose triacetate film in 1947, which for some time, was considered suitable for archival records. Cellulose triacetate film is however, not without its own stability problem. As such, polyester base film introduced in 1955 is considered suitable for the most permanent photographic records (Messier, 1993). With the most stable base, polyester film, according to USA National Archives and Records Administration (2000), "tends to resist chemical and physical changes as it ages under varied storage conditions"

Film Deterioration

Films are prone to deterioration particularly when exposed to improper storage conditions. As we have seen, there are three broad types of films namely cellulose nitrate, cellulose acetate and polyester which have been used for transparencies, motion pictures, microfilm etc. Both cellulose nitrate and cellulose acetate are unstable. They suffer chemical decomposition which results in production of acid that is harmful to photographic collections and can even lead to their destruction. An obvious characteristics of deterioration of film in these categories is vinegar syndrome which has been defined as the process whereby acetic acid is released as a result of decay of acetate film" (Porck and Teygeler, 2000). This is manifested in vinegar odour, shrinkage, warping and plasticizer deposits. The noxious odour from deteriorated negatives also constitutes serious health and safety hazards and can cause skin, eye and respiratory problem. Deteriorated nitrate film constitute fire hazard and its spontaneous combustion is

said to be as low as 106°F (Messier, 1993). Unlike nitrate film, acetate film does not pose a serious fire hazard.

Types of Decay

The National Film Preservation Foundation (of the USA) (2004) identified the following types of decay and damage in film:

- 1. Mechanical Damage:** This occurs as a result of poor handling of films. For example, when films are unspooled on a dirty worktable or passed through worn rollers, the tendency is for them to pick up dust, dirt, scratches and abrasions. Films can also get torn when stressed in the course of winding or projection.
- 2. Mould, Mildew and Fungus:** These biological agents attack films that are stored under humid conditions. The attack which usually starts at the edge moves to the film roll and results in significant damage to the emulsion.
- 3. Acetate Decay (Vinegar Syndrome):** This occurs as a result of the destruction of the plastic base of acetate film by water, high humidity and heat. At first, the plastic releases acetic acid identical to vinegar. The chemical reaction accelerates with advancement in decomposition. The typical features of decay process are vinegar smell, shrinking of the film base with attendant curling and warping, loss of flexibility, cracking of emulsion and appearance of white powder along the edges and surface of the film.
- 4. Colour Fading:** Films fade over time as the dye layers lose their original colour at different rates. The main factors responsible for colour fading are heat and high relative humidity. Cool and dry storage can slow down the process but cannot reverse it.
- 5. Nitrate Decay:** This occurs as a result of the nature of cellulose nitrate plastic itself and the storage condition of the film. The process of nitrate deterioration is irreversible but can be retarded through improved storage.

Film Archives and Organizations

For close to eight decades, attention has been focused on the preservation of film and the establishment of film archives across the world. In 1933, the British Film Institute (BFI) was founded. With more than 150,000 films and 600,000 television programmes, it remains one

of the largest film archives in the world. In 1934, it created the National Film Archive (now the National Film and Television Archive). The BFI was one of the founding organizations of the International Federation of Film Archives (FIAF) which was founded in 1938 (British Film Institute Website).

FIAF brings together the world's leading institutions in the field of moving picture heritage. In 1938, when it was founded, FIAF had four members. Today, the membership strength stands at more than 150 institutions in more than 77 countries (FIAF Website). FIAF's aims, among others are to:

- i. uphold a code of ethics for film preservation and practical standards for all areas of film archive work;
- ii. promote the creation of moving image archives in countries which lack them;
- iii. seek the improvement of the legal context within which film archives carry out their work;
- iv. foster training and expertise in preservation and other archive techniques; and
- v. develop co-operation between members and "to ensure the international availability of films and documents".

FIAF was closely involved in the preparatory work for the UNESCO Recommendation for the Safeguarding and Preservation of Moving Images which was approved in Belgrade in 1980. It facilitates contacts between developing archives and older archives for the purpose of impacting knowledge and exchanging experience. It also, has Summer Schools for the training of archive personnel.

In the United States of America, no organisation existed for film preservation until 1935 when a film library was established by the Museum of Modern Art through a grant from Rockefeller Foundation (Abbott, 1997). Today, the Library of Congress and some other organizations are involved in film preservation. The National Film Preservation Board established by the National Film Preservation Act of 1988 plays a significant role in influencing policy and setting standards for film preservation. There is also the National Film Preservation Foundation which is a nonprofit organization created by the US Congress to ensure the survival of America's film heritage. The Foundation which commenced operations in November 1997 is aimed

at sourcing and disbursing funds for film preservation. The Foundation, particularly champions research in film preservation and the production of useful publications on the subject matter. The Image Permanence Institute at Rochester Institute of Technology also plays a vital role in film preservation particularly in the areas of environmental management, testing and standards and collection storage. It has also been undertaking research in preservation with funding support from institutions and organizations like the Division of Preservation and Access of the National Endowment for the Humanities, the National Historical Publications and Records Commission and Eastman Kodak Company (Reilly, 1993). The IPI Storage Guide for Acetate Film is a particularly useful document that provides an overview of environmental specifications for film storage. The Association of Moving Image Archivists has also been providing a professional guidance for film preservation. It organizes training and conferences and provides opportunities for sharing information through its list serve and committees (National Film Preservation Foundation, 2004). Its publication, *AMIA Tech Review*, provides an avenue for sharing ideas on best practices in film archives management.

The Library of Congress has, since the early 1970's operated an in-house film laboratory. The laboratory, located since 2007 in Culpeper, Virginia and known as Packard Campus for Audio Visual Conservation "has the primary curatorial responsibility for the library's 6.3 million piece collection of audio, moving image, and film materials" (Weissman, 2010).

In Canada, the Library and Archives Canada (LAC) takes responsibility for the acquisition and preservation of motion film of national historical importance. It operates a Film Video and Sound Archives with a large collection of films, videos and sound recordings. According to LAC, the collection "serves as one of Canada's richest sources of national memory." On 21st June 2011, LAC officially opened a new nitrate film preservation facility at Ottawa to provide standard preservation environment and the required fire prevention and protection measures. The building was said to have been "equipped with small individual vaults, specialized monitoring and an exterior buffer zone of land for added security" (LAC). The importance of this facility can be viewed from the fact that collection in nitrate-based films

captures significant moments and events in Canada's national life up till 1950s when nitrate films became obsolete.

In Australia, the National Film and Sound Archive (NFSA) with its headquarters in Canberra collects and preserves the country's audiovisual heritage. It has gained international recognition as a centre of excellence in active audiovisual preservation.

Film Preservation and Global Best Practices

Film preservation, according to National Film Preservation Foundation (2004), "embraces the concepts of film handling, duplication, storage and access." This seems to be a summary of the issues involved in film preservation. This section, therefore, focuses on some of these issues in the light of international standards and techniques.

Film Handling

Even when in good condition, a lot of damage can be done to film-based materials when poorly handled. The gelatin binder of the film can be scratched, abraded and creased. Oils and dirt from the hands can damage the support and binder. The effect of poor handling becomes more pronounced in deteriorated materials which can become brittle and sticky. The implication is that frequent handling is not desirable and that film should be handled only when absolutely necessary.

As a rule, film-based materials should not be handled with bare hands. The wearing of clean, lint free cotton or nylon gloves is a minimum requirement for film handling and handling should be by the edge. In the most ideal situation, safe film handling, according to National Film Preservation Foundation, requires specialized equipment and supplies which can be procured from vendors. The work area must be clean, well-lit and well-ventilated. Eating and drinking or smoking should not be allowed in the processing area. It is also essential that when handling or examining materials, a system of locating and setting aside damaged materials for possible treatment should be established (Fischer, 1993).

Related to film handling is film inspection which the National Film Preservation Foundation (2004) rated as "the single most important way to date a film, identify its, technical characteristics, and detect damage and decay." The Library of Virginia, in conformity with the standards approved by the American National Standards Institute

(ANSI) and Association of Information and Image Management International (AIIM), recommends that a sample of randomly selected reels of microfilm in storage should be inspected for evidence of deterioration at approximately two year intervals.

The National Film Preservation Foundation recommends the use of a standardized inspection works sheet which serves as a checklist. The report of the inspection exercise has the benefit of providing the basis for future preservation actions.

Duplication

When negatives are at the advanced state of deterioration, the tendency is for an institution to adopt the option of disposal, particularly in the case of hazardous nitrate negatives. To prevent loss of films of great value, historic negatives may have to be duplicated before they are destroyed. Duplication is also aimed at creating viewing prints, access copies and masters so as to remove pressure and handling from the film and, thus, extends its life span. According to National Preservation Foundation (2004), “protecting the original by creating new film masters is the gold standard in film preservation”. Messier (1993) submitted that a camera duplication system is the most economical for large collections of negatives. He also suggested that duplicated materials be stored in individual non-buffered enclosures and placed into boxes that meet ANSI Standard IT 9.2 – 1991. Selecting titles for film-to-film duplication is a daunting task. Factors to consider include historical significance and uniqueness of the film, research demand, availability of funding and institutional priorities.

Film Storage

Storage is about the most critical element of film preservation and management. Storage conditions determine the fortune of film and also have implications for access and use. Reilly (1993) identified temperature, relative humidity and pollutants as the principal factors in the storage environment that can affect film.

These factors act alone and in combination to bring about deterioration. The Image Permanence Institute’s Storage Guide for Acetate Film is a useful tool for evaluating and planning storage environment for acetate-based film materials. Its focus, according to IPI, is “the general relationship between storage RH, storage

temperature, and the approximate number of years before vinegar syndrome would become a serious problem for fresh, brand-new film.” The IPI Wheel which is based on research results on vinegar syndrome can be used to evaluate the effect of a particular environment on the life expectancy of acetate film. As such, it can be used to predict the life span of fresh and degraded films stored under different relative humidity and temperature combination. It can also be used to plan a new storage environment.

The international storage standard is cold storage. Cold storage is achieved at 40°F or 4°C with 30% relative humidity. For nitrate film which is a potential fire hazard, the ISO standards require a maximum temperature of 36°F with relative humidity of between 20% and 30%. The effect of different levels of temperature at a given relative humidity range as established by IPI is shown on Table 1.

Table 1: How Temperatures Affect Film Materials
(When RH is between 30% and 50%)

	Room 68°F (20°C)	Cool 54°F (4°C)	Cold 40°F (4°C)	Frozen 32°F (0°C)
Nitrate film*	Likely to cause significant damage	Likely to cause significant damage	Meets ISO recommendations	Provides extended life
Acetate film*	Likely to cause significant damage	Likely to cause significant damage	Meets ISO recommendations	Provides extended life
Polyester film	B&W: May be OK Color: Causes significant damage	B&W: May be OK Color: Causes significant damage	B & W: Provides extended life colour: Meets ISO recommendations	Provides extended life
Video tape, magnetic sound	May cause significant damage	Acetate: May be OK Polyester: Meets ISO	Acetate: Meets ISO recommendations Polyester: May be	May cause significant damage

track, and prints with magnetic sound track		recommendations	OK	
DVDs	May be Ok	Meets ISO recommendations	Meets ISO recommendations	May cause significant damage

Source: IPI Media Storage Quick Reference

The use of cold storage vaults is, however, said to depend on a number of factors including the size of the collection, availability of resources, frequency of use and institutional commitment to preservation (National Film Preservation Foundation, 2004). While insulated cold storage room is most suitable for large and medium-size collections, the off-the-shelf frost-free freezer or refrigerator is recommended for small media collection. Freezing storage has the tendency to slow advance vinegar syndrome. The use of freezers and refrigerators is, however, accompanied by the challenge of having to protect film from high humidity during storage. As a way out, careful packaging through the use of a rigid film container such as resalable polyethylene freezer bags has been recommended. In any case, frozen storage is said not to be ideal for reference prints or frequently consulted materials.

The National Film Preservation (2004) lists a number of places where film should not be stored as follow:

1. Basement (often have high humidity) or on the floor.
2. Attics (hot in summer and have fluctuating temperature throughout the year).
3. In direct sunlight or next to window.
4. Near heaters, radiators or sprinklers.
5. Near chemical, paint, or exhaust fumes.

6. For magnetic sound tracks, near magnetic fields such as those produced by heavy-duty electrical cables, electrical equipment, and transformers.

Cataloguing

Cataloguing which is a form of description is an aspect of film collection management. Through description, essential information about the physical characteristics and content of films is captured. This provides a link between the material and its user. While different cultural institutions have their different cataloguing practices, the Machine Readable Cataloguing (MARC) format developed by the library community seems to have provided a shared international framework for cataloguing. MARC, according to the National Film Preservation Foundation (2004), “offers a model for structuring and presenting data that is logical and inclusive yet flexible enough to accommodate the requirements of individual repositories”.

The MARC format is designed to be used in conjunction with established cataloguing rules. For instance, the second edition of Anglo-American Cataloguing Rules (AACR2) provides the general rules for the description of many types of materials including audio visual in English-speaking countries. The peculiar requirement of film and video was, however, taken care of in 1984 when the *Archival Moving Image Materials: A Cataloguing Manual* was published with update version (AMIM2) in 2000 (National Film Preservation Foundation).

Access

Access, according to National Film Preservation Foundation, “embraces the full range of activities through which scholars, students, filmmakers, film enthusiasts, and the general public study and view film held by public and nonprofit institutions”. Provision of service to researchers is, therefore, central to film management and services. In this regard, facilitating intellectual access without compromising the safety of the film is a major challenge which a film archive has to grapple with. The way out for most organizations is to provide access through film, video, or digital copies. Although it has been observed that video or digital copies of original works do not substitute for the experience of viewing the films themselves, they nevertheless facilitate access without endangering the original.

Nigerian Situation

Preliminary investigation of this author revealed that information resources in film format in Nigeria, particularly in public institutions were in deplorable state of health. In most public institutions investigated, vital film archives were in advance stage of deterioration, a situation which is a reflection of the standard of film archives management in the country. Film storage condition and handling was far from being ideal while access to the information content was impeded for reason of deterioration and, consequently, inaccessibility. The National Film Archives of Nigeria was established in 1992 under the Nigerian Film Corporation Act of 1979 to play a pivotal role in film management in Nigeria. However, much has not been achieved in this regard due to myriad of problems facing the establishment and, by implication, the task of film preservation and management in the country.

Conclusion

Countries in the developed world have a long history of film preservation spanning close to eight decades. They have developed standards and procedures which can ensure the survival of man's documentary heritage in film format which is of historical and cultural value. There are also film institutions and organizations relentlessly carrying out or sponsoring researches into the nature of film materials with a view to finding solution to the problem of deterioration and meeting the challenges of film archives management. They also evolve tested standards and undertake the training of film archives personnel. Film archives in developing countries like Nigeria should, therefore, avail themselves of the existing international best practices in film archives management and services.

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