Endangered Archives Programme

Guidelines for film preservation

Motion picture films come in many sizes (widths). 35mm is the form most commonly seen in cinemas. 16mm film has been mostly used for television work and non-theatrical distribution prior to video. Narrow, or sub-standard gauges such as 8mm, super 8 or 9.5mm, were popular with amateur filmmakers before the emergence of video cameras. Films will be either negatives or positives. Some 16mm films and most narrow gauge formats are on reversal stock, meaning a process whereby the film taken in the camera has been turned directly into a positive, resulting in no negative.

All motion picture films are made up emulsion and a clear plastic base. The emulsion holds the image record; the base supports the emulsion. 35mm films made before 1952 are usually on nitrate stock, which is subject to irreversible chemical decay over time and which is highly inflammable. It should only be handled by a specialist archive. All other films will be on safety stock, either acetate or polyester. Older acetate films may be subject to what is known as the 'vinegar syndrome', a form of chemical deterioration recognisable firstly by a distinctive vinegar smell. Any films showing signs of vinegar syndrome should be kept away from other reels, and treated by a specialist archive. The International Federation of Film Archives (FIAF) has a directory of its members worldwide, at www.fiafnet.org/uk/members/directory.cfm.

Films should be stored at low temperatures and with low relative humidity levels. High temperatures and damp conditions speed up the chemical processes which lead to the deterioration of the film stock. It is important also to maintain stability of storage conditions, as fluctuations in temperature or relative humidity will cause further damage. Films are best kept in clean metal or plastic cans, or failing that archival-standard cardboard boxes. If cans are broken or rusty, they should be replaced. Guidance on storage conditions, including relative humidity levels, is provided by www.imagepermanenceinstitute.org.

Before any copying takes place, careful examination should be taken of the original films. Older films may be shrunken, have tears or damaged perforations, scratches on the emulsion, or may suffer from mould (caused by damp conditions) or various forms of chemical deterioration if they have been stored badly. Film will need to be copied by an archive or laboratories with the appropriate equipment, and all films will require cleaning before any transfers are done, which should be included in estimated costs.

The principle for the preservation of motion picture film is to copy onto film of the same format to create a preservation master, while a viewing copy can be on the same film format, video or digital. For narrow-gauge film formats, however, it may be preferable to copy to a higher gauge, or direct to a digital format. It is usual, therefore, to copy 35mm film to 35mm for preservation purposes, and 16mm to 16mm, while for formats such as 8mm, super 8 and 9.5mm, copies can either be blown up to 16mm or generated in digital video form (there is little point in copying from, say, Super 8 to Super 8). If you are starting with film negatives, you will want to generate a positive print and, potentially, a dupe negative for the creation of

subsequent prints. If you are starting with a positive, you will be producing a dupe negative and print.

If motion picture films are to be copied onto digital formats, best practice is to avoid compression as much as possible for the creation of the preservation copy. Compression is not so much of an issue for creating an access copy. For the creation of a digital master, the ideal would be to copy onto DigiBeta tape, which is an industry standard, involves relatively little compression, and can be readily used to generate access copies. It is, however, quite costly. A satisfactory alternative is to copy onto DVCPRO tape, or failing that one of the consumer DV formats, DV or DVCAM. HD (High Definition) is an emerging standard, but probably too expensive at present for small collections to consider. Copying directly from film onto DVD-video (MPEG-2) involves significant compression, and should only be considered as a last resort. **Copying onto DVD does not preserve the film; it merely prolongs its endangered status in a different form.** An access copy can be generated at the same time as the creation of the preservation master, on miniDV or DVD.

For video standards and copying to file-based formats, see the guidelines for video preservation.

All cans and tapes should be properly labelled, with the title of the film, its source, date of production, and any local identifying number, such as a vault location number. Identifying numbers should also be written or printed on the leader at the head of the reel. Preservation and access copies should have the same title.

Preserving motion picture film is a specialised and expensive business. Applicants should take advice in advance from a recognised film archive.

Further reading

The UK Film Archive Forum provides some guidance notes outlining basic principles of film and video conservation and preservation, including a film gauge identification chart:
http://www.bufvc.ac.uk/faf/guidance.htm

The Association of Moving Image Archivist's Film Forever website provides simple guidelines for preserving motion picture film materials outside specialised archives.
http://www.filmforever.org

Standard film preservation guidance is provided by the National Film Preservation Fund in the USA:
http://www.filmpreservation.org

UNESCO book *Audiovisual Archives: A Practical Reader*, which includes a section on the preservation of audio and video materials in tropical countries:
http://unesdoc.unesco.org/images/0010/001096/109612eo.pdf (please this is a very large file – 37MB – and it will require the free Adobe Acrobat reader to open the document)