

## **Introduction**

Photographic materials are among the most common items found in households.

Colour film and prints contain dyes that are subject to fading in the light and dark, and they can also deteriorate chemically and physically. This deterioration is impossible to stop entirely but it can be slowed down with proper handling, care, and storage.

Black-and-white negatives are made up of two principal layers. In recent negatives the top layer (the image-bearing one) is made up of tiny silver particles in gelatin and the lower (support) layer is usually plastic; in antique negatives the lower layer is glass.

Digital technology provides easy access to photographs, but poses new challenges. Photographs that are scanned into a computer can be viewed in an electronic format and/or printed out, but these digitized images are not replacements for the originals. Computer hardware and software can become obsolete, equipment crashes and power outages can erase material, and the long-term stability of digital imagery is still in question.

## **Causes of Damage**

**Negatives:** Light, temperature, humidity, and pollution all cause deterioration. Damage can also result from poor processing and mishandling.

Old film negatives that are acetate-based may develop a vinegar-like smell over time (an indication of a chemical reaction). Other signs of deterioration include warping and wrinkling of the negatives. Pre-acetate films were made of nitrate, and degradation of these materials causes the film to soften and the image to fade. The gases that are released in this process are toxic; storing large quantities of these materials can pose a fire and health risk.

Negatives that are stored in older plastic or paper enclosures may be damaged over time. If the paper has become brittle or the negatives are stained or faded, they should be repackaged in acid-free materials for storage.

Black-and-white negatives are sensitive to changes in heat and humidity which facilitate reactions of the silver particles with oxidizing chemicals (the same process that causes silver objects to tarnish). This results in yellowing of the image, staining, or even fading. Colour negatives are subject to fading.

Colour film breaks down faster than black-and-white film when exposed to heat.

Prolonged exposure to sunlight or bright artificial light will make the gelatin layer brittle. Light will cause the dyes in colour photographs to fade and, in black-and-white photos, may lead to possible staining.

**Photographic Prints:** The major villains are heat, humidity, light, pollutants, framing, and improper handling.

Very dry conditions cause prints to curl, and humid conditions result in mould and mildew. Exposure to light—especially direct sunlight—results in fading (colour photographs are more sensitive than black-and-white ones).

Improper framing techniques can cause problems: matting that is not acid- and lignin-free can damage photos; masking tape and Scotch tape can discolour and/or stain prints; unmatting photos can be damaged or get permanently stuck to the glass in frames, especially if the glass is sprayed with liquid cleaners (many of which are corrosive and will stain or fade photos).

**Digital Prints:** As with other photographs, improper handling can cause damage. Avoid direct contact with glass and use acid- and lignin-free matting when framing.

Digital photos are far more heat-sensitive than traditional prints, and must be kept away from extended heat, direct sunlight, and extreme fluctuations in temperature.

### **Handling**

**Negatives:** Negatives can be easily damaged. To prevent scratches or other damage, wear lint-free cotton or nylon gloves when handling unsleeved negatives, pick them up by the edges, and never fold them or leave them unprotected. This will also avoid fingerprints.

Store negatives in sleeves made of inert plastic (uncoated polyethylene or polyester) or envelopes made of acid-free paper. Identifying negatives is important but do not write on them with ballpoint or felt-tipped pens. Instead, note details on the storage enclosures before inserting the negatives.

Cold storage (but no attics, basements, or garages) will help to prevent decay of negatives and will extend their life.

**Prints:** The best way to store prints is in clear Mylar (plastic) envelopes or acid-free envelopes or boxes. Write any inscriptions on the storage envelopes or along the borders or back of the print, using HB pencil (ballpoint or felt-tipped pens can bleed through the paper and damage the image).

Photo albums are popular for storing prints, but they are relatively expensive and bulky so be sure to sort out the poor, blurred, or less desirable snapshots. It is also important to choose albums carefully as some types are much better than others.

Avoid albums with self-stick plastic-covered pages (the adhesive on the mounting pages can stain or otherwise damage photos). Photographs stored this way can usually be removed easily within a year or two by inserting a thin knife under the edge of the photo and gently separating it from the page. Photographs become increasingly difficult to remove after prolonged storage in these albums; never curl or peel back a photo because it may end up permanently curled, cracked, or torn.

Envelopes or sleeves in albums should be made of a stable plastic such as Mylar (polyester) or polypropylene. For albums with acid-free paper, 'corners' made of plastic film are available to hold prints but these are not recommended for large or fragile photos.

Do not use white glue, rubber cement, Scotch or masking tape, or staples for mounting photos in albums.

Think twice before removing photographs from old albums: older paper-paged photo albums are probably not harming the photographs whereas removing them might cause damage. Plus, old family albums often contain interesting historic or family inscriptions about people, places, and events.

Be careful when framing photographs or snapshots. Most of the decorative frames available at commercial outlets are not equipped with mats of archival quality or spacers that protect the photograph from direct contact with glass.

Important photographs should be matted to museum standards, using archival matting and backboard. Check with a professional in a good framing store.

Do not display photographs in direct sunlight or under bright lights, and keep them away from heat vents and damp locations.

Store prints in a cool and dry spot; basements, attics, and garages are not suitable locations for storage because their temperature and humidity levels vary too much.

## **Cleaning and Repair**

**Negatives:** Removing dust or surface dirt with a soft brush is usually sufficient. Dry ethyl alcohol or acetone may be used for spot cleaning. Do not clean negatives in aqueous solutions.

Do not try to remove any stains (yellow, blue, or brown) on negatives (these come about as a result of contact with unstable materials such as newsprint, adhesives, or residual processing chemicals). Leave repairs of this nature to a professional conservator or consider having the negatives duplicated.

**Prints:** Use a soft brush to remove surface dirt. More extensive work should be referred to a professional conservator as photographs can easily be damaged by moisture and solvents.

If a photo is faded or stained, it may be less expensive to have it copied (some stains can be filtered out when making a duplicate or copy) or scanned into a computer, enhanced digitally, and then printed on photographic paper. Do not print copies on computer paper as these will fade quickly.