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How to care for Archival Collections

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Terminology

Preservation is the term used to describe all activities that help to slow down deterioration and protect collection materials from physical damage.
This includes providing the appropriate standards of environmental control, handling, storage, and security. It can range from providing suitable boxes for storage to managing a Emergency Response Plan.

Conservation is the term used to describe all actions taken by a conservator to halt deterioration and prolong the life of an object by physical intervention.
This can be as basic as repairing a tear on a page or as complicated as replacing a badly damaged leather binding.

Restoration is used to describe the treatment of an object in order to return it aesthetically to as close a state as its original as possible. This is generally a step beyond conservation.

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What are the main causes of damage to archival collections?

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Agents of deterioration

1. Physical force
2. Fire
3. Water
4. Theft and vandalism
5. Chemical
6. Pests
7. Neglect
8. Humidity
9. Temperature
10. Light

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1. Physical Force

The greatest risk to archives, on a day to day basis, is from physical force.

Archival materials are easily damaged, most physical damage comes from general and repeated use (wear and tear). Poor handling can cause tears and losses, that eventually make them inaccessible.

It can also be caused by accidents, for example if an item is dropped.

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2. Fire

Fire can cause:

- Partial or complete loss of archive material.
- Chemical changes due to combustion reactions.
- Physical changes due to heat damage.
- Physical and chemical changes from smoke and from the water used to extinguish the fire.
- Deposits of soot on objects.

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3. Water

Water leaks and floods are the most common causes of water damage, but can also be caused by simply spilling a drink.

Water can be as catastrophic as a fire. It can lead to:

- Partial and complete loss of media and/or archival material.
- Physical damage such as distortion and deformation of objects, shrinking.
- Staining and tidelines.
- Objects sticking together.
- Mould.
- Pest infestation.

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4. Theft and vandalism

Theft can be opportunistic or premeditated. It can occur when readers, staff and/or volunteers steal archival material or when objects on display are deliberately targeted.

Vandalism is the wilful or premeditated infliction of damage to an object. Vandalism can include removal of pages from books and drawing/writing on the archival material.

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5. Chemical

These come from two sources:

External includes dust and soot which cause dirt, abrasion and can attract insect pests and mould. Chemicals from unsuitable storage materials and gases from paints or glues are also a factor. These can cause fading and discolouration and make the paper and card supports brittle.

Internal or inherent factors can cause acidification, discoloration and staining, and may accelerate the rate of deterioration. They relate to the chemical composition of the object itself such as acidic wood pulp paper or iron gall ink or added metal pins and inclusions that rust.

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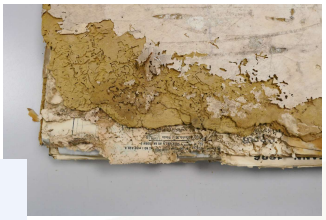
6. Pests

Archival collections provide a great source of food for mould, rodents and insects such as silverfish and carpet beetles. These pests can cause complete loss of the object, discolouration and staining, and can decimate a collection.



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7. Neglect

Neglect is when on-going care is not taken to protect the archive or where collections care practices are not kept up-to-date.

Neglect can lead to dissociation or the loss of information associated with an object. Dissociation can cover loss of identification labels, misplacement of parts of an object and lack of descriptive information.

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8. Incorrect Relative Humidity

Relative humidity (RH) is the measure of what most of us refer to as humidity. When warm air is cooled, the RH increases, leading to problems of damp. The opposite happens when cold air is heated, the RH falls.

High RH (damp) can cause:

- Mould.
- Increased pest activity.
- Mechanical damage such as warping and distortion of boards, cockling of paper and sticking to glass for framed objects.
- Corrosion of metals such as book clasps, paper clips and other metal fasteners. Chemical deterioration

Low RH (dry) can cause:

- Embrittlement of objects.
- Mechanical damage such as splits, tears and cracks.
- Chemical deterioration such as yellowing of paper.

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9. Incorrect Temperature

Incorrect temperature falls into three categories:

Too high can cause:

- Softening of waxes, resins and coatings, leading them to become tacky and easily marked when handled, and to absorb dust more easily.
- Failure of adhesives.
- Increase in the lifecycle of some insect pests.

Too low can cause:

- Physical damage. Objects can become stiff and brittle, with the result that they are more likely to crack when handled.

Temperature fluctuations can cause:

- Condensation.
- Physical damage such as cracks, splits and tears.
- Loss of media.

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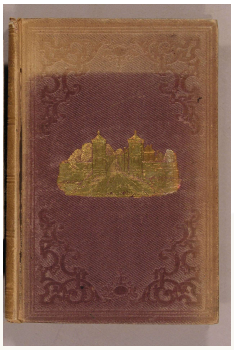
10. Light

All light is damaging but light with high concentrations of blue and UltraViolet [UV], such as daylight and unfiltered fluorescent light, is the most damaging. Light damage is cumulative and cannot be reversed.



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Agents of deterioration

1. Physical force
2. Fire
3. Water
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5. Chemical
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8. Humidity
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Any questions on how to identify the causes of damage to archival collections?

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Defining Condition

Good condition: that the object is structurally sound, that the materials from which it is made are not actively deteriorating; and that with due consideration the object can be safely handled, consulted and displayed.

Fair condition: that the object may have deteriorated, been damaged or previously repaired; but with care and due consideration it can safely be handled, consulted and displayed.

Poor condition: that the object is actively deteriorating due to inherent physical characteristics in the way it was constructed, damage due to inappropriate handling, storage and display; or unsuitable repairs. The object cannot be safely handled, consulted or displayed without risk of further damage.

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Example: Condition Survey

It revealed that in total 16,000 sheets of parchment in various document formats and 9,000 sheets of loose paper manuscripts or bound text blocks had survived the explosion.

8% Grade 1 - Stable

21% Grade 2 - Fair

16% Grade 3 - Poor

36% Grade 4 - Unstable

19% Grade 5 - Inaccessible

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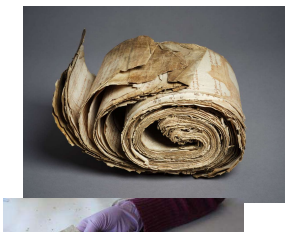

Grade 1 – 3 Condition

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How to reduce the risk of these Agents of deterioration

1. Physical force	Handling Guidelines / Good Housekeeping
2. Fire	Emergency Response Plan
3. Water	Emergency Response Plan
4. Theft and vandalism	Security Risk Management Procedures
5. Chemical	Environmental Management / Good Housekeeping
6. Pests	Good Housekeeping / Emergency Response Plan
7. Neglect	Best Practice Guidelines / Good Housekeeping
8. Humidity	Environmental Management / Good Housekeeping
9. Temperature	Environmental Management / Good Housekeeping
10. Light	Environmental Management / Good Housekeeping

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Gloves – the BIG debate!

Types of gloves
- White cotton gloves
- Unbleached cotton gloves
- Nitrile gloves

Pros
- Gloves protect both item and handler
- Show a conscious effort of care
- For certain material (photographs) gloves should always be worn

Cons
- Can make items difficult to handle
- Can trap and transfer dirt
- Can catch on delicate edges

Handling and using archives

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Handling files

- Place flat on the table
- Keep the table clear and clutter free
- Turn the pages carefully
- Check the length of the tag as you work through the pages
- Pages should be re-aligned and tucked neatly inside folder when finished

Handling and using archives

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Handling books

- Avoid pulling a book from a shelf using the top of the spine, as this will eventually cause the spine to tear
- Support the book by holding the text block either side of the spine when removing it from a shelf
- Do not force a book to open flat
- Use book cushions to support the book when open to reduce strain on the spine and binding

Handling and using archives

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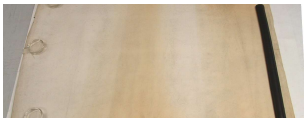
Handling maps

- Ensure you have a large table, free of clutter
- Map should not be allowed to hang off the edge of the table
- Use leather or glass weights to stop the map from curling
- Cover with a sheet of Mylar to protect if necessary
- Ask for assistance handling large maps if you need it



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Handling photographs

The surface of photographs is very delicate – it can be easily abraded.

- Always wear gloves
- Handle at the edge
- Avoid writing on the back of the photograph
- Never surface clean without advice from a conservator

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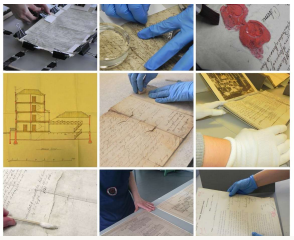
Questions to consider when handling

- Do I have a valid reason for picking this up?
- What is its condition?
- What is the safest way to hold it?
- Is it too fragile to hold?
- After I have lifted up the object, where am I setting it down?
- Are my hands clean?
- Should I wear gloves?
- Do I need assistance?



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Dust and dirt

- Dust - small, fine particles that settle on horizontal surfaces
- Dirt - an accumulated layer of ingrained dust and grime
- Provides ideal environment for insects & mould to flourish
- Surface cleaning is the removal of the loose particles
- Methods for cleaning should always be adapted to ensure that the object and media is not damaged

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Surface Cleaning

What to use:
Soft horse or goat hair brushes and vulcanised natural rubber sponges
Advantages:
- Do not leave damaging residues on the paper surface
- Non abrasive

How:
- Make sure you have well lit, clean work space
- Cover table with a dust sheet
- Gently brush the sponge over the surface of the paper
- Apply only a little pressure
- Be careful of fragile/damaged paper or media
- Sponge will pick up and absorb dirt
- Replace sponge once dirty
- Finish by brushing paper

Note: Photographs should never be surface cleaned with a sponge

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Paper Fasteners

Documents are often secured together in a number of different ways:

- paper clips
- straight pins
- brass butterfly clips
- staples

These can all cause physical damage (such as puncturing, tearing or creasing of the paper) or chemical damage (stains from the degrading and rusting metal fasteners).

Metal fasteners causing any type of damage should be carefully removed. If the paper is robust enough they should replaced with stainless steel or plastic paperclips that won't rust. Ideally a small strip of archival paper should be folded over the top of the paper to support and protect it from the pressure of the clip.

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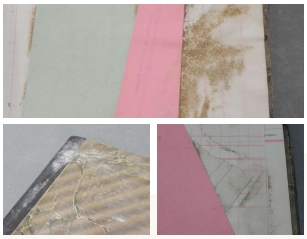
Mould

- Spores are small and air borne
- Can remain inactive for long periods
- Flourish when humidity increases and there is little air circulation – such as damp undisturbed storage areas.

What to do

- Find cause
- Modify the environment by reducing humidity
- Assess affected items
- Air dry items if practical
- Remove mould carefully if light amount
- Ensure items are returned to clean and dry area

If there are high levels of mould present call an expert for advice



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Personal Protective Equipment (PPE)

Always ensure you wear P.P.E. when dealing with high levels of dust and light mould.

- Nitrile gloves
- Goggles
- FPP3 masks mould
- HEPA filtered vacuum cleaners

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Trouble with tape!

Commercial sellotape® degrades over time, the adhesive cross-links, permanently staining the paper and eventually failing. This staining can only be removed by a conservator using solvents.

- Do not try and remove any tape that still appears to be well adhered or tacky
- The adhesive will degrade to the extent that the clear film tape 'carrier' will start to lift, only then is it safe to remove

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Importance of keeping storage areas clean

- Promotes respect and best practice
- Saves time, as items are easier to locate and retrieve
- Makes for healthier and safer working environment
- Staff should be encouraged to play a key role in keeping storage areas clean

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Good housekeeping

Should be part of larger annual maintenance plan, that establishes:

- What jobs need to be done
- Frequency
- What tools and equipment are needed

For example:

- Weekly – floors cleaned and internal window sills wiped
- Monthly - tops of boxes dusted
- Yearly - shelving hoovered and cleaned

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Emergency Planning

An emergency response plan details the action to take during an event that threatens the collections.
The aim is to ensure that operations to salvage the archives are undertaken safely and that damage and the risk of long-term deteriorate of the collection is reduced.

Typically the plan is divided into the following sections:
- Risk reduction
- Emergency information
- Emergency response guidelines
- Guidance and reference documents

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Improving Storage

The simplest way to help guarantee long-term care and safety is to ensure archives are correctly housed. For example:

- Replace file covers and folders that do not protect and secure the contents to allow safe handling by the staff and public.
- Remove metal paper clips that are corroding.
- Consider splitting files that are too large to be safely handled and they need to be split into two or more folders.

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Why do we box?

- Lack of protection can result in chemical or physical damage
- Boxes provide protection
- Restrict exposure to light
- Restrict exposure to air borne pollutants
- Reduces handling, as allows for clear labelling and identification of contents

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Housing archives to protect them

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Storage enclosures should be:

- Enclosures should be stiff enough to protect their contents
- The size and shape of enclosures should closely match the object

They should be 'preservation' quality:
- Lignin/Acid free – i.e. the acidic components of paper have been removed
- Acid neutral - have a pH of 7-7.5
- Alkaline buffered - calcium carbonate added during manufacture, to raise the pH of the paper so it can absorb a certain amount of acidity

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Housing archives to protect them

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Polyester pockets

- Polyester, polypropylene, polyethylene meet preservation standards
- All are free from plasticisers, surface coating, inhibitors

Note: Polyvinyl Chloride (PVC) should never be used, as it is chemically unstable

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Housing archives to protect them

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Mylar, Melinex or Polyester pockets?

- Polyester most stable & inert plastic
- High melting point
- Mylar and Melinex are brand names of polyester
- Can used in folders to isolate fragile items
- Allows visibility
- Provides support

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Photographic prints

- Prints & negatives should be stored in individual enclosures
- Either paper or polyester can be used
- Give support
- Protects from fingerprints and grease
- Protects from abrasions

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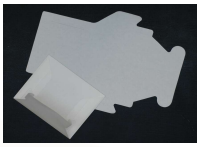
Photographs – paper vs polyester

Paper
- Protects from light
- Requires more handling
- Cheaper



Polyester pockets
- Allow image to be fully viewed
- Require no handling
- Can trap gases if fully sealed

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An alternative to boxing

- Wrapping the book in archival quality paper
- Secured with wide cotton tape
- Cheaper alternative to boxes
- Offers less protection
- Difficult to rewrap
- Knots should always be at top or fore edge, so they don't apply pressure or damage the binding

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Oversized materials – stored flat

- Maps should be stored flat in drawers
- Drawers should not be overfilled, as items can get caught in mechanics of the cabinet when drawers are opened/closed
- Large mylar sleeves offer protection when the maps are in the drawers and in the reading room

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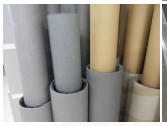
Oversized materials – stored rolled

- Oversize maps can be rolled
- Wide tubes used as the core support
- If not archival quality wrap tube in archival paper or 'mylar' to provide barrier
- Rolled maps should ideally be stored horizontally



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ARA's Best Practice Guidelines & Toolkits
Collections Care Toolkit
The toolkit is designed to support archivists and those working with archives that do not have in-house conservation support.
Collections Care Toolkit — Archives & Records Association
Security Guidance
This security guidance document has been prepared for the Archives & Records Association – ARA (UK & Ireland) and its members and can be used by all recordkeeping professionals. It will not answer all of the security questions that you may have but it will provide a solid basis upon which security risk management decisions can be taken. It should be read in conjunction with the guidance in relation to Archives Accreditation.
Security Guidance from the Archives and Records Association — Archives & Records Association
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