

Preservation Needs Assessment

2021



The Royal Geographical Society of Queensland Ltd

Jennifer Loubser
Maité Le Mens
07/04/2021

Table of Contents

Table of Contents.....	1
Acknowledgement	3
Organisation.....	3
Executive summary.....	4
1) The scope of the study.....	4
2) Overall assessment	5
a. Short term (0-2 years).....	6
b. Medium-term (3-5 years).....	7
c. Long term (5-10 years).....	8
1. Collection policy.....	9
2. Environment.....	10
1) Climate Data.....	10
2) Air-conditioning and Air filtering	12
3) Lighting conditions.....	13
3. Storage	14
1) The Artefacts & RGSQ Archives storage rooms	14
2) The Library	15
3) The map room.....	16
4. Display.....	19
5. Labelling and item numbers	20
6. Housekeeping	21
1) Biological control, Integrated Pest Management (IPM)	21
2) Dust	21
3) Quarantine and Inspection	22
7. Disaster preparedness	23
1) Security and access	23
2) Fire protection	23
3) Emergency preparedness	24
4) Recent Disasters/Incidents	26

8. Condition survey	26
1) Artefacts collection	27
2) Library collection.....	31
3) Maps collection	34
Appendix	37
1) Environmental guidelines	37
2) Data Log data	38
Resources	42
1) Collection Management.....	42
2) Labelling	43
3) De-accessioning or Donating	44
4) Caring for time-based media and magnetic recordings, including audio	44
5) Workshops	48
6) Policy Management Example.....	50
7) Caring for your collection: metal objects.....	52
8) Caring for your collections: books and bound material.....	55
9) Caring for your collections: Photographs.....	60
Suppliers.....	66
Bibliography	67
Authorship	68
Jennifer Loubser.....	68
Maïté Le Mens	68

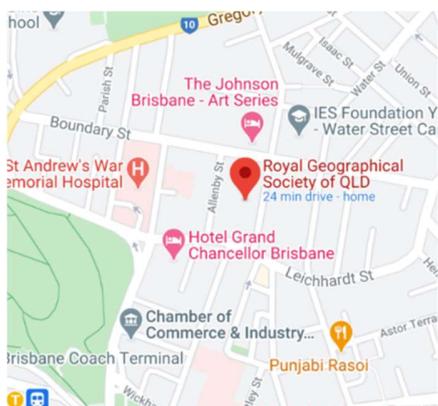
Acknowledgement

This preservation needs assessment has been made possible by the Community Heritage Grant.

The Community Heritage Grants program funded by the Australian Government through the National Library of Australia; the Department of Infrastructure, Transport, Regional Development and Communications (Office of Arts); the National Archives of Australia; the National Film and Sound Archive of Australia and the National Museum of Australia.

The authors would like to thank the Collection Committee and Lilia Darii for their help and input to realise this Preservation Needs Assessments report: Rob Cook (Chair), Ralph Carlisle, James Graham, Peter Lloyd, Dr Peter Griggs.

Organisation



Organisation details

Mail address: **The Royal Geographical Society of Queensland Ltd**

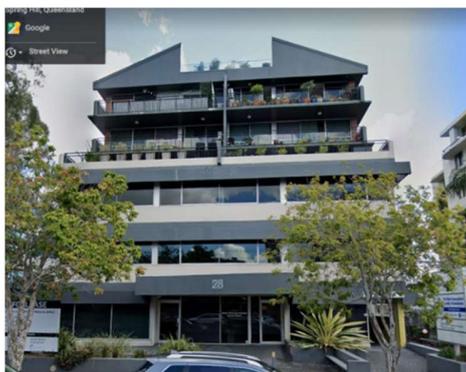
P.O. Box 625

Spring Hill Qld 4004

Phone: 07 3368 2066

Email: info@rgsq.org.au

Website: www.rgsq.org.au



Organisation building

The organisation has been located in this building since September 2018. The Royal Geographical Society of Queensland occupies the entire first floor of a standalone structure. On the North, East and South facing walls, there are many windows, including floor to ceiling windows. On the West side, the emergency exit, restroom facilities and the lift are located.

Executive summary

This document reports the findings of a Preservation Needs Assessment conducted on the collections held by the Royal Geographical Society of Queensland during February and March 2021. The report includes the assessment itself, an evaluation of the current condition of the collections and a series of recommendations for future action.

1) The scope of the study

- The environment and its impact on preservation, including:
 - the location of the collections,
 - the temperature, humidity,
 - lighting conditions,
 - cleanliness and contaminants.

- Storage of the collections and items on display, including:
 - shelving, hanging and cabinetry,
 - suitability of the housing materials for individual collection items.

- Preservation considerations for parts of the collection:
 - considered by the Society to have a high priority
 - for their national and local importance
 - for their historical value for the Society itself, including any opportunities for digitisation.

- RGSQ member and public access to a digital collection catalogue.

- Policies for the management of the collection and inclusion of preservation within the policy.

- Risk management, including security and disaster preparedness.

- Recommendations for improvement where considered necessary.

2) Overall assessment

Environment	<p>The collection locations are satisfactory, with attention to detailed recommendations about the environmental factors.</p> <p>Temperature and humidity appear stable and within the range expected for collections stored in Brisbane, subject to further measurements. Air-conditioning should be operated 24 hours a day, 7 days a week, all year round, with measures to increase airflow.</p> <p>All collections need protection from U.V. light through the windows and U.V. light from the building lighting systems.</p> <p>While dust and contaminants do not appear to be a major problem yet, cleaning frequency for the collection areas should be increased with more use of collection-friendly cleaning materials.</p>
Storage	<p>Since the collections are accessed infrequently, storage in a compactus would improve preservation and should be considered, along with specialised display units for items held on display in public spaces.</p> <p>Historical maps should be stored in a flat storage unit, and RGSQ should acquire additional flat storage.</p> <p>The highest priority for collection preservation is the acquisition of suitable storage containers to protect individual collection items, as detailed in the report.</p>
Individual item preservation	<p>The condition of individual items varies from good to significant deterioration. As mentioned above, RGSQ should embark on a program to house items in suitable storage containers.</p> <p>Items regarded as a high priority should be considered for the conservation measures listed in the report.</p> <p>Priority images and slides are candidates for immediate digitisation to record the current state before any further deterioration. RGSQ should also consider digitising priority items from the maps, library and artefacts collections.</p>
Digital catalogue	<p>While RGSQ has committed considerable effort to create digital catalogues of their individual collections, it will become important to combine the various collection catalogues into a single digital collection catalogue.</p> <p>The current catalogues are not online via the internet. RGSQ has been investigating a strategy to put their digital catalogue online for their members and for the public, through eHive or otherwise. This direction is important and needs to be completed.</p>
Policies	<p>A review of the existing collections policy will assist RGSQ to incorporate the recommendations of this report into the policy.</p> <p>The recommendations include adding policies for training staff and volunteers in positive preservation techniques and risk management.</p>
Risk management	<p>Current procedures appear somewhat relaxed. RGSQ should assess risk management for their collections and implement measures for mitigating risk.</p>

The tables below suggest a program for implementing the report’s recommendations over the next few years, concentrating on the highest priority improvements in the immediate period.

a. Short term (0-2 years)

	Recommendations	Priority	Time frame	Resources required
1	Housing and storage of important, valuable, prioritised collections	1	0-6 months	Archival storage materials
2	Maintain set points for air-conditioning 24 hours a day, 7 days a week, all year round	1	0-6 months	Volunteer and staff time
3	Ongoing staff training in archival storage and display techniques	1	2-12 months	Attend workshops with Museum and Heritage specialists and Conservators.
4	Undertake U.V. reduction	2	6-12 months	U.V. film, blackout blinds, diffusers
5	Re-housing of fragile and deteriorating collections that are accessed often	2	6-12 months	Archival storage materials
6	Establish priority collections for preservation and conservation treatment	2	6-12 months	Staff time to source conservation quotes and funding applications
7	Add to the established ongoing small interest group of volunteers and attend training to help care for the collection and undertake catalogue and rehusing projects	3	12-24 months	Volunteer and staff time with input from heritage specialist or workshop
8	Research and cost analysis of digitisation and web-based catalogue options	3	12-24 months	Volunteer and staff time
9	Develop a cleaning policy that is adhered to and purchase housekeeping equipment	4	12-24 months	Volunteer and staff time. A vacuum cleaner with HEPA™ and microfibre cloths.
10	Review security	4		Volunteer and staff time

b. Medium-term (3-5 years)

	Recommendations	Priority	Time frame	Resources required
11	Add recommendations to collection management policy	1	3-5 years	Volunteer and staff time
12	Ensure existing displays meet current museum preservation standards	1	3-5 years	Volunteer and staff time with input from museum Display specialist
13	Update disaster preparedness procedures relating to significant collections	1	3-5 years	Volunteer and staff time with the input of a Disaster specialist or workshop
14	Complete a purpose-designed storage area and ensure that the amount of space is adequate for the collections and allows future growth	1	3-5 years	Volunteer and staff time
15	Research Trove/alternative existing catalogued copies of RGSQ collections	2	3-5 years	Volunteer and staff time
16	Digitisation of time-based media ¹ , obsolete carriers, film, magnetic tapes, negatives and slides	3	3-5 years	Volunteer and staff time
17	Ongoing staff and volunteer training	3		Workshops and updates
18	Continue cataloguing and re-housing new acquisitions to the collection	4	3-5 years	Archival storage items

¹ Time based media and obsolete carriers refer to media that has both physical and temporal dimensions. For instance, slides, negatives, film, audio and magnetic tapes, vcr, cd's, dvd's and computer-based technologies.

c. Long term (5-10 years)

	Recommendations	Priority	Time frame	Resources required
19	Organise and improve storage facilities to allow for continued growth	1	5-10 years	Volunteer and staff time
20	Introduce a program to digitise the collection	1	5-10 years	Volunteer and staff time
21	Put in place catalogue web-accessible RGSQ collections	1	5-10 years	Volunteer and staff time

1. Collection policy

There are three distinct collection areas (library, maps, and a combination of artefacts, images and archives); each has been catalogued with its own system. There are several digital catalogues of various collections in various stages of completion. Different labelling systems are in place, and each system is maintained by volunteers available to work with various parts of the collection.

Transfer of the library catalogue data from the current DBText system, which is a single user and not on the internet, to an online platform such as eHive is considered a priority. The Society needs a system that is accessible to members via the web and from which the National Library of Australia's Trove system can harvest data.

The collection policy in place was not sighted during this assessment. While the policy may not be implemented completely yet, implementation is in progress.

The collection policy should have the following information (*See Appendix: Policy Management Example*):

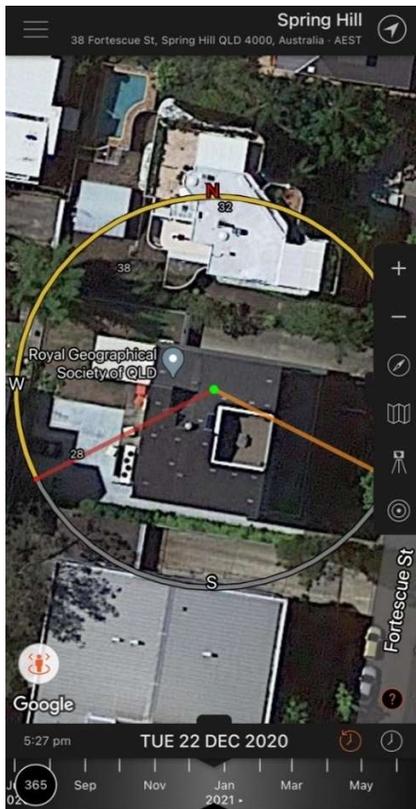
- Mission statement;
- Details about the acquisition of additional material for the collection;
- Documentation of what actions should be undertaken for item types in the collection;
- Documentation policies and procedures about lending or borrowing material;
- Storage and housing;
- Preservation and Conservation;
- When de-accessioning may occur;
- Review of the policy;

Summary recommendations

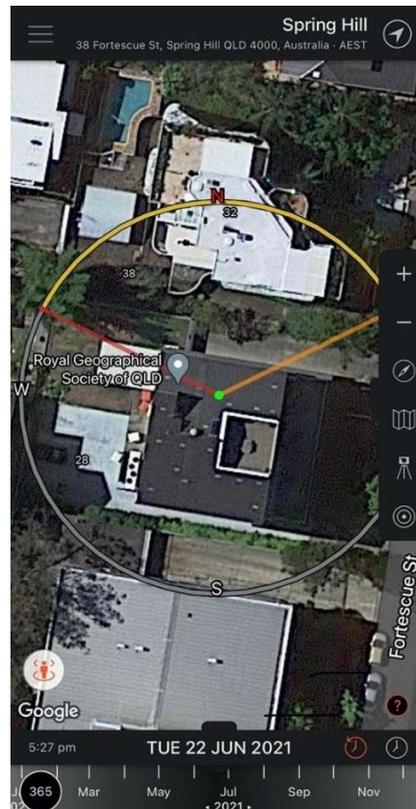
1. Incorporate preservation requirements into the collection management policy
2. De-accession items that are not relevant to the institution and its collection.
3. Integrate three different catalogue systems into a single system encompassing the entire collection. Aim to include the following details for each collection item:
 - Accession or Collection Number
 - Description
 - Media and materials
 - Date
 - Origin
 - Condition
 - Location
 - Photographs

2. Environment

1) Climate Data



1. Sun Surveyor Data: Mapping the most sunlight through the year at RGSQ



2. Sun Surveyor Data: Mapping the least sunlight through the year at RGSQ

The Library collection is housed in the North-East corner, while the Maps collection is housed in the Southeast corner. The Artifacts and Archives collections are stored in two centrally located internal storage rooms with a closed door, away from sources of light and moisture.

Environmental control conditions in the building housing the RGSQ collections are relatively stable, well insulated and perfectly acceptable. Temperature swings are minimal, generally within 5 degrees, and this is agreeable for collection storage. The relative humidity is generally above 60%, where mould can start to grow, so it is essential to maintain a regular cleaning program to monitor and keep dust and pollutants minimal. Although humidity swings between 47% - 70% in this space, these changes are gradual over several days, and the collections are in good condition so far. This is about as good as a typical air conditioning system provides in South-east Queensland and is sufficient for these collections.

Within the international cultural heritage community, debates persist about temperature and Relative Humidity (R.H.) specifications for collection care and lending, energy efficiency, environmentally aware practices, and sustainability. In 2014, the Australian Institute for Conservation of Cultural Materials (AICCM) published the Environmental Guidelines Taskforce report: An interim position which offered

temperature and R.H. specifications based on 'those developed by professional conservation groups internationally, most notably by the American Institute for Conservation' (AIC). Later that year, the International Council for Museums - Committee for Conservation (ICOM-CC) and the International Institute for Conservation (IIC) published a joint declaration outlining broad principles based on sustainability and management, collection environment, and loans (ICOM-CC 2014). (see: *Appendix environmental guidelines*)

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	24.5 °C (76.1) °F	24.1 °C (75.4) °F	23 °C (73.4) °F	20.5 °C (68.9) °F	17.6 °C (63.7) °F	15.3 °C (59.5) °F	14.6 °C (58.2) °F	15.7 °C (60.3) °F	18.5 °C (65.3) °F	20.5 °C (68.8) °F	22.2 °C (71.9) °F	23.7 °C (74.6) °F
Min. Temperature °C (°F)	21.3 °C (70.4) °F	21 °C (69.9) °F	19.9 °C (67.9) °F	17 °C (62.6) °F	13.5 °C (56.4) °F	11.5 °C (52.7) °F	10 °C (50) °F	10.7 °C (51.3) °F	13.7 °C (56.6) °F	16.3 °C (61.4) °F	18.4 °C (65.1) °F	20.1 °C (68.2) °F
Max. Temperature °C (°F)	28.7 °C (83.7) °F	28.1 °C (82.6) °F	27 °C (80.5) °F	24.7 °C (76.5) °F	22.3 °C (72.2) °F	19.9 °C (67.8) °F	19.9 °C (67.9) °F	21.4 °C (70.6) °F	24.2 °C (75.6) °F	25.8 °C (78.4) °F	27.1 °C (80.7) °F	28.3 °C (83) °F
Precipitation / Rainfall mm (in)	127 (5)	126 (5)	101 (4)	55 (2.2)	68 (2.7)	56 (2.2)	30 (1.2)	37 (1.5)	38 (1.5)	72 (2.8)	89 (3.5)	110 (4.3)
Humidity(%)	73%	75%	75%	74%	71%	72%	67%	64%	65%	66%	69%	71%
Rainy days (d)	10	10	10	7	5	5	3	4	4	6	8	9

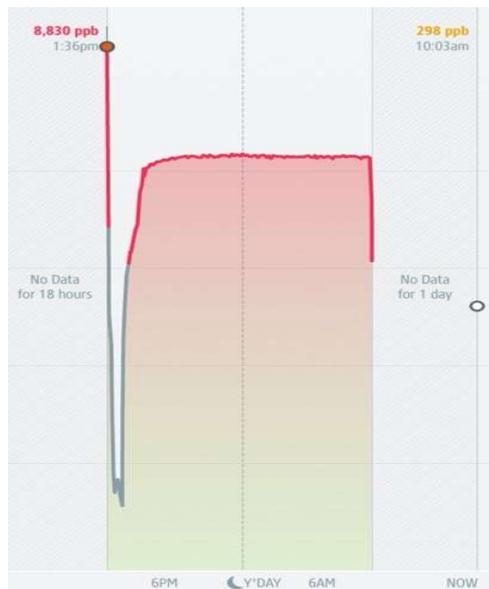
3. Table of the average climate in Brisbane

Three data recorders were used to collect the temperature and the relative humidity over time to check the stability of the environment for the collections in three main areas used for collections storage at RGSQ (see *Appendix: Data logs*):

- Artefact and Archives Storage Area
- Library Area
- Map Storage Area

Data loggers were used in different areas to track the environmental conditions surrounding the collections. The information is not definitive, as the period was limited to summer and autumn months of February to April, during a particularly rainy season. This data does give a good picture of the most extreme weather of the year in terms of temperature and relative humidity as they relate to safe collection storage. Conditions in the building housing the collections are relatively stable.

Following is a study of the bad air quality during transport of the data logger to RGSQ on Monday the 1st of February. Inside a soft plastic sleeve, the off-gassing of Volatile Organic Compounds is trapped against anything stored inside.



4. Air quality data graph, 1st February 2021

Measurements		Monday, 1 February 2021
STUDIO 204 PAPER > RGSQ LIBRARY AIR QUALITY		
9:00 AM - 10:00 AM		
9:46 am	☆☆☆☆☆	(387 ppb)
9:45 am	☆☆☆☆☆	(610 ppb)
9:36 am	☆☆☆☆☆	(1,364 ppb)
9:26 am	☆☆☆☆☆	(1,414 ppb)
9:16 am	☆☆☆☆☆	(1,393 ppb)
9:06 am	☆☆☆☆☆	(1,423 ppb)
8:00 AM - 9:00 AM		
8:56 am	☆☆☆☆☆	(1,317 ppb)
8:46 am	☆☆☆☆☆	(1,386 ppb)
8:36 am	☆☆☆☆☆	(1,408 ppb)
8:26 am	☆☆☆☆☆	(1,446 ppb)
8:16 am	☆☆☆☆☆	(1,433 ppb)
8:06 am	☆☆☆☆☆	(1,444 ppb)

5. Air quality data, 1st February 2021

8,830 Parts Per Billion (ppb) of Volatile Organic Compounds (VOCs) while data logger was transported inside a soft plastic sleeve to RGSQ, as soon as the data logger was removed from the plastic sleeve at 9:30 - 10 am on the 1st of February 2021, VOCs dropped to 298 ppb.

Providing evidence that plasticisers of soft low-density plastics should be avoided for storage and are not suitable to be in contact with heritage collections.

Summary Recommendation

1. Further data logging is necessary during 12 months to obtain complete temperature and humidity records.

2) Air-conditioning and Air filtering

The air conditioning is controlled from a central unit on one of the pillars within the floorspace. During the site survey, it was noticed that the volunteers were changing the temperature during the day. The air conditioning only runs during the work week.

Summary Recommendations

1. Continuous air conditioning at a set temperature all week and all year without interruption assists in maintaining stable environment for stored collections.
2. Ensure that all air outlets are regularly cleaned.
3. Leave the door open to the internal artefact storage rooms to increase ventilation, maintain lower humidity and more stable temperature in the interior room

3) Lighting conditions

Lighting conditions within the collection storage and the display areas fall into two categories:

- Natural external daylight is filtered through tinted windows covered with black blinds that mainly remain closed near the Library collections. White venetian blinds, some of which are kept open to let in natural light for the office desks, can also reach the storage room where the maps are kept. Unfortunately, with no Ultraviolet (U.V.) filtration on the windows, this will cause light damage and fading to the collection, which is cumulative and irreversible.
- Fluorescent overhead lighting does not appear to have U.V. filters. Diffusers block a small amount of U.V. rays from artificial lighting that can fade pigments and cause photo-oxidation.

Summary Recommendations

1. Continue with data logging to understand the light reading fluctuations over a year.
2. Place filters that block U.V. light on the fluorescent tubes over the collection storage areas.
3. Place filters that block U.V. light on the windows. In the case of U.V. film installation, this has a shelf life and needs to be replaced every 5 years.
4. Mechanically block U.V. light from entering North, East, and West-facing windows by installing and closing block-out blinds each evening, opening only after direct daylight no longer passes through to the collections. Install blackout blinds that can be drawn to cover the Library and hanging map collections.

3. Storage

The Royal Geographical Society of Queensland collection storage is divided into three main areas:

- The Artefacts and Archives storage rooms are centrally located in the middle of the floor area
- The Library is located in the Northeast corner of the building.
- The Maps storage area is located in the Southeast corner of the building,

1) The Artefacts & RGSQ Archives storage rooms



6. Left view of the archive storage room



7. Right view of the archive storage room



8. View of the internal artefact storage room, good example of priority collections in safe Albox storage



9. View of the internal artefact storage room, example of available space for improved storage

The two Artefacts and Archives storage rooms are located in the middle of the floor area. There are two connected rooms, with access to the internal Artefacts storage room through the first room. The archives of the Royal Geographical Society of Queensland are situated in the first room.

These rooms are used for the storage of objects and paintings in the collection. Other office supplies (electric cables, light bulbs, archives) are also stored here. There is limited storage space for the entire collection. The articles are stored in different types of cabinets and boxes: metal, wood, melamine shelving, cardboard and plastic boxes. Some collection items sit directly on the floor; some are stacked or leaned against each other. Some collection items are placed directly underneath the air conditioning vent, and this can create distortions of those objects (see pictures above).

2) The Library

The Library is located in the Northeast corner of the building. The Library open shelving area is well ventilated, protected from light exposure, and is mainly away from sources of heat and moisture. It is surrounded on two sides by windows covered with black blinds. Some shelves are directly against the windows; and will be affected by heat transferred from sunlight against the exterior wall and some U.V. deterioration. The shelves are mainly made of metal. A regular cleaning program to keep dust from settling atop shelved books is recommended. Adhesive post-it notes, and rubber bands, and any metal clips should be removed to prevent future damage and replaced with plain white paper wraps. Labels can be written in pencil on paper wraps or on the exterior of boxes. Important books and journals in fragile condition with detached bindings or covers should be stored in acid-free lignin-free paper folders or boxes to protect them from dust, pests, and light. These important boxed collections can then be prioritised for conservation as time and funding allow.



10 Library

3) The map room



11. Vertical plan cabinets at South facing windows



12. Horizontal plan drawers in Southeast corner



13. Hanging map storage along Southeast corner

The map collection is the most extensive collection of the Royal Geographical Society. There are between 8000 to 9000 maps; less than 100 are dated before the second world war. The institution's map storage area is contained in a relatively small area shared with office desks. Due to quantity and many different sizes and formats, there is an overflow of historic rolled maps.

Some are displayed hanging or rolled and stood on end against windows, in the corridor and other areas. Several maps are stored in front of North and East facing windows with direct daylight exposure, without protective window filtration or housing. Some antique maps on shellac paper with rollers are becoming brittle with age and should be protected from light exposure and dust accumulation.



14. View of the corridor, facing North



15. Maps near window in the corridor facing North



16. Detail of shellac paper map hanging in corridor

These maps on shellac paper are at risk of fading from exposure to Ultraviolet light as well as extremes in temperature and humidity. Accelerated ageing and brittleness are the type of deterioration these maps experience as they are exposed to direct sunlight year-round. Other maps make a brilliant display as they hang on their rollers. However, as they are placed in the corridor to the restrooms, this moisture source from aerosolised water places them at risk.

Maps in storage include flat powder-coated steel map drawers. These are ideal for fragile and important map collections. Hanging map files are appropriate for published maps that are replaceable should they become damaged through handling.

Summary Recommendations

Improve storage and display conditions

One of the main reasons for continuing deterioration is the overcrowding of the collection in storage or display. The housing of important collections inside acid-free lignin-free paper folders or boxes is recommended to prevent deterioration due to average dust accumulation. This also protects from possible mechanical damage during handling and viewing access.

1. Acquire new storage systems, possibly either a small compactus unit, powder-coated steel shelving and racks or lockable cupboards, allowing space for the present collection and future growth.
2. Clean the new storage spaces thoroughly and air new storage cabinets until rid of off-gassing before placing original collections in them.
3. Artefacts in storage are ideally housed in an internal storage room away from sources of light, heat and moisture. Humidity is often above 72% due to it being less well ventilated than the open storage areas. A regular program of opening the door Mondays appears to mitigate the higher levels of humidity; also, opening it each weekday could help improve ventilation.
4. Items on the floor should be elevated with closed-cell Ethafoam® 220 polyethene foam cushioning or placed on storage racks above the ground.
5. Nothing should be in direct contact with the front and reverse of a painting.
6. Give all objects adequate support and reduce physical stresses, which can cause damage.
7. A flat shelving system could be installed above map drawers to safely store and protect rolled maps.
8. Protect historically significant shellac paper maps hanging near window by removing them to a location with no direct daylight exposure. Selecting locations away from windows is best. Internal corridors where the large shellac paper map is currently hanging on display is a better location.
9. Store all loose objects in acid-free lignin-free paper folders or boxes. Provide Tyvek® waterproof and breathable dustcovers for oversized paintings and objects that cannot be stored in a box.
10. For storage of paper-based collections, acid-free lignin-free paper card folders and interleaving or wrapping are recommended.
11. If paper-based collections are frequently accessed and handled, they can be stored in Mylar® or Albox® Polypropylene sleeves as the transparency of these reduces the need for 'hands-on' handling. The sleeved material should not be completely sealed and should have a sheet of lignin-free paper inside the sleeve at the back to buffer any humidity that may become trapped inside. These should be then placed in archival folders, boxes, drawers or shelving.
12. Important books and journals in fragile condition with detached bindings or covers should be stored in acid-free paper folders, acid-free corrugated board boxes, or Mylar® dustjackets to protect from dust, pests, and light. These important boxed collections can then be prioritised for conservation as time and funding allow.
13. Compare and consider attending preventive conservation workshops to learn the best storage methods for the long-term preservation of significant collections.
14. Easy access to items viewed regularly.

4. Display

There are no display cases, as most of the collection is kept in different storage areas. Most of the collection which can be exhibited are 2D artefacts hanging on the walls. There is no labelling to indicate a description of the displayed items or their relation to the collection. The collection of items on display does not appear to be rotated or changed ever.

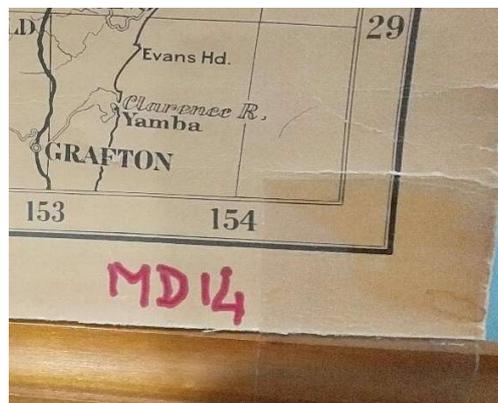
Summary Recommendations

1. Items chosen for display should not be those of great significance to the collection.
2. Limit displays of significant collection items to short-term special exhibitions.
3. In preference, display reproduction prints or published materials that can be easily replaced when they become deteriorated.
4. Displayed works need to be protected from light exposure.
5. All light-sensitive pigments and media, including paper, historic photographs, maps, books, original drawings and watercolours, should be displayed for short periods of time, no longer than 6 months during every 5 years, at 50 lumens brightness.
6. A register should be started to ensure displays are documented per collection item as light damage is accumulative and irreversible.
7. Replace display near North corridor and any other windows with robust non-historic collections.
8. Robust collections, including oil paintings, timber, ceramic or metal objects could be displayed for longer periods.
9. If paper-based collections are framed, ensure acid-free lignin-free framing materials are in contact with important framed originals.
10. Ensure framed original works are not pressed directly against glass, as pigments, inks and emulsions can become stuck to glazing if there is insufficient space between them.
11. Install black fabric covers over the glass of display cabinets and the framed original works hanging on the wall to protect these collections from dust and fading.
12. Rotate displays regularly.
13. Compare and consider attending exhibition display workshops to learn the best methods for long-term preservation of significant collections.

5. Labelling and item numbers

Inappropriate labelling or the way the items are individually numbered for identification can damage and devalue material. Self-adhesive tapes of any kind are not recommended. The tapes go through a number of stages when they deteriorate. Firstly, the adhesive becomes very sticky and is easily absorbed into paper, book cloths and leather. In the next stage the adhesives change chemically and begins to yellow and eventually turns dark orange. At this stage the adhesive is almost totally insoluble, and stains cannot be removed. Once the adhesive becomes insoluble, the tape falls away, so the repair or label has failed, and the item is now badly stained as well.²

Permanent markers or other types of pens damage original collections and are not reversible. Soft 2B pencil on the reverse of collections, or ideally paper labels attached with cotton string, should be used for labels.



17. Example of numbers of identification made with a felt tip marker

Summary Recommendations

1. Labels are best written only in soft 2B pencil on paper wraps, or on the exterior of housing boxes, or if absolutely necessary on the reverse of originals.
2. Compare and consider attending workshops on how to label historically significant collections and implement best practices.

² Heritage Collections Council, 1999, reCollections: Caring for Collections Across Australia, HCC, Canberra, <https://aiccm.org.au/conservation/collection-care/>

6. Housekeeping

1) Biological control, Integrated Pest Management (IPM)

- Maintain environmental conditions as stable as possible.
- Seal around windows and doors, covering cracks and gaps (physical exclusion).
- Replace broken or damaged ceiling tiles.
- Replace broken or damaged fluorescent light diffusers.
- Vacuum thoroughly and regularly to keep the place clean (physical removal).
- Monitor all areas regularly.
- Use sticky traps to help monitor pest activity.
- Only apply cleaning chemicals as a last resort.

If pest infestation is found, implement non-chemical eradication first:

- Inspect and remove all suspect or infected material.
- Thoroughly inspect neighbouring material.
- Thoroughly vacuum with a vacuum cleaner with HEPA™ filter.
- Only apply appropriate chemicals if and where necessary.

To treat infested material:

- Consult disaster manual
- Seal material to contain infestation.
- Freeze infested material or use low oxygen method.

2) Dust

There is no significant dust build-up in all of the open shelving and storage cupboards. Only the top part of the cupboards was showing dust build-up.

"Dust has a three-fold effect: firstly, it is very abrasive and can damage the types of items contained within the collection, especially items stacked on top of each other and book-binding. Secondly, it has been found to contain metallic and acidic traces, which will migrate to items in contact. Thirdly, it is hygroscopic and by attracting moisture encourages mould growth if other conditions are conducive."³

³ Donaldson j (2003). Queensland Women's Historical Association Inc. Miegunyah House Documentary Archive Collection. Conservation Consultant, The Whole Story

Summary Recommendations

1. Food and drinks should not be consumed or prepared in the storage areas.
2. Areas should be cleaned weekly: Floor areas should be vacuumed with a vacuum cleaner fitted with HEPA™ filter that is regularly changed.
3. Above ground surfaces also need to be dusted regularly, including cabinet tops. There are number of effective dust cloths on the market that capture dust instead of moving it into the air. These should be made of microfibre and washed well before and between use to ensure any additives are removed.
4. Regularly maintain open displays by visually inspecting front and reverse for hidden pests and dust.

3) Quarantine and Inspection

It is important to realise that another possible source of biological infestation or contamination is through new additions to the collections. Although this might not happen very frequently, it can still pose a large problem to the collection.

It is always necessary to isolate these items until they have had a thorough examination. If anything, untoward is noted during inspection, use good physical control methods.

Summary Recommendations

1. Isolate new items being acquired into the collection until they have been checked primarily for insects and mould. If either of these is found, the items need to be treated before being taken in the storage room.
2. Do not allow food and drink consumption in collection areas.
3. Carry out a risk assessment on your collections using sticky traps as a method of monitoring and identifying insect activity. These traps need to be placed in all areas the collections are housed and checked regularly.
4. Create a hostile and inaccessible place for pests, without using chemical treatments, as they are not always successful and can be harmful to both humans and the collections. Chemical control should only be used as a last resort after other methods have been tried. These methods include:
 4. a. Vacuuming to remove pests.
 4. b. Creating barriers by placing collection items in bags or containers.
 4. c. Insect-proofing the level where the organisation is by sealing around doors, windows and in cracks, gaps and around pipes.
 4. d. Keeping areas clean and not allowing eating or drinking in the same areas as the collections.
5. Add lid on rubbish bins and empty them regularly.

7. Disaster preparedness

1) Security and access

The security of the Royal Geographical Society of Queensland is average. There are five security cameras with a control monitor in the basement. It is a self-monitored system. It is not connected to an exterior security company. To open the door on the ground floor, someone must have the key or the door must be open electronically from the interior. There are three access points to the floor, the lift and two emergency doors. Those two doors are locked, and the keys of those are located on the pins board in the kitchen. Everyone has access to these keys. The access by the lift is closed at night. Thirteen persons have the keys: staff members (3 sets), councillors (5 full sets, 1 lift key), cleaners (1 set), Committee members (2 sets), Geography Teachers Association of Qld (currently hiring office space – 1 set). Storage areas are unlocked.

The access by visitors is monitored at the entry, where there is a log with their details and QR code. However, it is possible to enter and exit the premises if front desk is unattended.

Summary recommendations

1. Review regularly the possession of the keys
2. Add alarm or security in the corridor to cover different entry points
3. Consider implementing checking bag policy on leaving premises
4. Increase security for important or high-value items
5. Keys to the Artefacts and Archives storage rooms should only be made available on request
6. The security should be reviewed yearly

2) Fire protection

Two fire extinguishers are located in the main room, with a third in the kitchen. Emergency signs are fitted with two hard hat helmets. One fire detector is present on the floor.



18. Extinguisher and hard helmets

Summary Recommendations

1. Organise an annual visit from the Queensland Fire & Rescue Service. This allows them to make fire safety recommendations in line with current procedures during regular maintenance of fire extinguishers and to be made very aware of the historical significance of the collections.
2. Train staff and volunteers in fire safety and have regular drills.

3) Emergency preparedness

At present, the Royal Geographical Society has an evacuation plan for visitors and staff but has no disaster preparedness plan for the offices, the Library, or the collections. Emergency Management Response plan is available. Work Health and Safety Manual are also available. Several archives boxes have been identified as “Salvage Priority”, which is the current approach used by the Queensland State Archives in its disaster preparedness policy. Therefore, the RGSQ should be identifying which maps and library material are so valuable that they are a ‘Salvage Priority’ if the building is threatened by flooding from a storm or cyclone or if the building is damaged by fire or earthquake. Heritage Collections Council guidelines and National Archives of Australia’s Disaster Preparedness Manual for Commonwealth Agencies provide excellent templates that can be used in building a plan for RGSQ (*See: Resources*).



19. Evacuation diagram presents in different area of the RGSQ

Within the institution, having a workable Disaster Preparedness Plan is good collection management. The Royal Geographical Society of Queensland staff and volunteers need to produce a practical document that outlines the steps, which need to be taken in the event of a disaster or emergency. This should ideally cover how to:

- Prevent disasters from happening,
- Prepare for disasters you are unable to prevent,
- Respond to the disaster, and
- Recover from the disaster.

The staff members and volunteers should prepare the plan as they have the best knowledge of the collection and the working of the society. They are also the ones most likely to help in the unfortunate event that something does happen. The plan should be user friendly and ensure that any disaster is dealt with in a controlled manner.

Summary Recommendations

1. Develop a user-friendly Disaster Plan.⁴
2. Staff members and volunteers should be trained in the Disaster Preparedness Plan.
3. Staff members and volunteers should be trained in all aspects of Occupational Health and Safety related to their duties

⁴ 'Guidelines for small museums for writing a disaster preparedness plan' is useful when writing a disaster preparedness plan. Heritage collection council (2000); http://www.magsq.com.au/_dbase_upl/beprepared.pdf

4) Recent Disasters/Incidents

No recent incidents have been reported.

Summary Recommendation

Start and maintain a log of any disaster or incidents. Details concerning the disaster should be noted, as well as any action taken. After the disaster preparedness plan is undertaken the log is then used to ensure the plan is up to date and works well.

8. Condition survey



20. Items set out for assessment during Preservation Needs Assessment site visit

The Royal Geographical Society of Queensland collection encompasses a wide range of items which includes artefacts, archives, objects, paintings, a library, maps, plans and charts. Due to the large quantity of items in the collection, a sample of them is represented in this survey. The sample is focused on the collection items selected by staff which are of foremost significance to RGSQ for preservation.

As collections are determined significant, they can be prioritised for housing, conservation and digitisation. For example, in the RGSQ Archives are eight pre-1950 minutes books that are deteriorating. There are also individual paper documents associated with famous Australian explorer A.C. Gregory, with R.M. Collins promoter of the establishment of Lamington National Park, and with the early European

exploration of The Carnarvons in the 1930s and 1940s and the Lambert Centre. These need better preservation housing.

1) Artefacts collection

<p>A13 - Hieroglyphic symbol: In good condition. However, the way it is framed is detrimental to the conservation of the textile for the long term, and the glass is broken. It needs proper storage for a textile.</p>
<p>A15 - Cape York telegraph insulator: In good condition.</p>
<p>A16 - Monto shire 75th anniversary coin: In good condition.</p>
<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>A17- Bronze heads sculpture: In poor condition: dirt, missing right ear, chips and visible retouching from previous restoration. Its protective case is missing.</p> </div> </div> <p><i>21. A17- Bronze heads sculpture</i></p>
<p>A18 - World globe ball: In good condition. It is dirty. Needs housing and storage.</p>
<p>A20/A21 - Geography promotion board: In good condition.</p>
<p>A23 - Battle of Salamanca Mitchell Collection #4: In fair condition. Drawn in brown, possibly iron gall ink. At the risk of fading from light exposure and at risk of ink corrosion from exposure to humidity above 60%. Protect by ensuring glazing is not pressed against paper and is well sealed against humidity using conservation-grade framing materials. Keep in dark storage except for brief special display occasions</p>
<p>A24 - Red bell: In average condition, a small amount of corrosion, flaking paint. Needs storage box.</p>
<p>A25 - Academia Mexicana de ciencias: In average condition, dust, fingerprints, and small chip.</p>

A26 - International Geography Olympiad trophy: In good condition, dust, and fingerprints.



22. A29 - Mitchell collection #2

A29 - Mitchell collection #2: Watercolour on paper attributed to Major Sir Thomas Mitchell of his son Livingstone. In fair condition. Acidic discolouration of paper likely due to contact with acidic wood pulp framing materials and/or backing board. If significant and prioritised for conservation, engage a professional conservator of artworks on paper to assess and quote on this and similarly framed originals. Ensure conservation-grade framing materials are used for important originals: 100% pure cotton rag mat window and backing board, with 99% Ultraviolet-filtering glazing to protect from fading.

A31 - RGSQ clock: In good condition.

A32 - Hon jas. Larcombe plaque: In average condition, dirt, insects, corrosion, and scratches.

A33 - Salamanca campaign Mitchell Collection #3: In good to fair condition. Photos printed on paper, including possibly iron gall ink inscriptions. Historic water damage and tide line stains along lower edges.

A35/A36/A37/A38/A39/A40/A41/A42/A43/A44 - Plates: In good condition. Poor quality of storage.

A45 - Stitched picture of the investigator 1801: In good condition.



23. A47 - Mitchell's pistol

A47 - Mitchell's pistol: In good condition. Needs housing that allows it to be viewed without handling.



24. A48 - Mitchell's camera lucida

A48 - Mitchell's camera lucida: The object itself is in good condition. However, the original case is brittle, and the lining presents some losses. Recommend minimising handling of this object.



25. A49 - Mitchell's paint box

A49 - Mitchell's paint box: In poor condition, showing normal signs of historic use, wear and age. The box is dirty, with scratches and fingerprints. The edges are broken. One of the two hinges is separated. In this condition, minimising the handling of this object and placing it in an archival storage box is recommended. If prioritised for conservation, engage a professional objects conservator to assess and quote on repairs.

A52 - Oil painting overlooking Brisbane: In good condition. Presence of dirt. It is stored directly on the floor without a protective housing. Needs Tyvek cover.



26. A55 - Oil painting of Charles Chauvel by Alan Baker

A55 - Oil painting of Charles Chauvel by Alan Baker: In poor condition. The paint layer is dirty, presents some punctures, tear, insects frass, cracks, and deformation. It is stored under an inappropriate curtain. Needs Tyvek cover. Prioritise for Conservation

A57 - Mitchell's shoulder belt: In good condition. However, because of the nature of the material it is fragile to handle. It needs a storage box or housing that will allow to be viewed without handling.



27. A58 - Portrait bust of Charles Artur Fitzgerald by Maria Kuhn

A58 - Portrait bust of Charles Artur Fitzgerald by Maria Kuhn: it is in really poor condition: dust, broken part, missing part, and bad overpaint. Needs storage or display case. Prioritise for Conservation

A59 - Lantern slide projector: In good condition. It was used in 2020. This object is stored on top of a cupboard. A proper storage box is very important to help preserve it in working order.



28. A60 - Mitchell's scrapbook

A60 - Mitchell's scrapbook: In poor condition with losses, loose pages, detached binding and covers. Temporarily wrapped in butcher's paper to protect fragile state and avoid loss of detached pages. Recommend placing sheet of acid-free interleaving paper between each page of original artworks, wrap entire scrapbook in acid-free paper, place within acid-free corrugated box. Extreme fragility suggests engaging a professional paper conservator to prepare it and oversee its safe digitisation.

A68 - Plane table and tripod: In good condition. There are scratches, and dust. It is stored on the floor in a corner with no protection.

A70 - Brass plaque: In good condition. Presence of scratches and fingerprint.

A77 - Seal of the RGSQ: In good condition. Signs of handling.



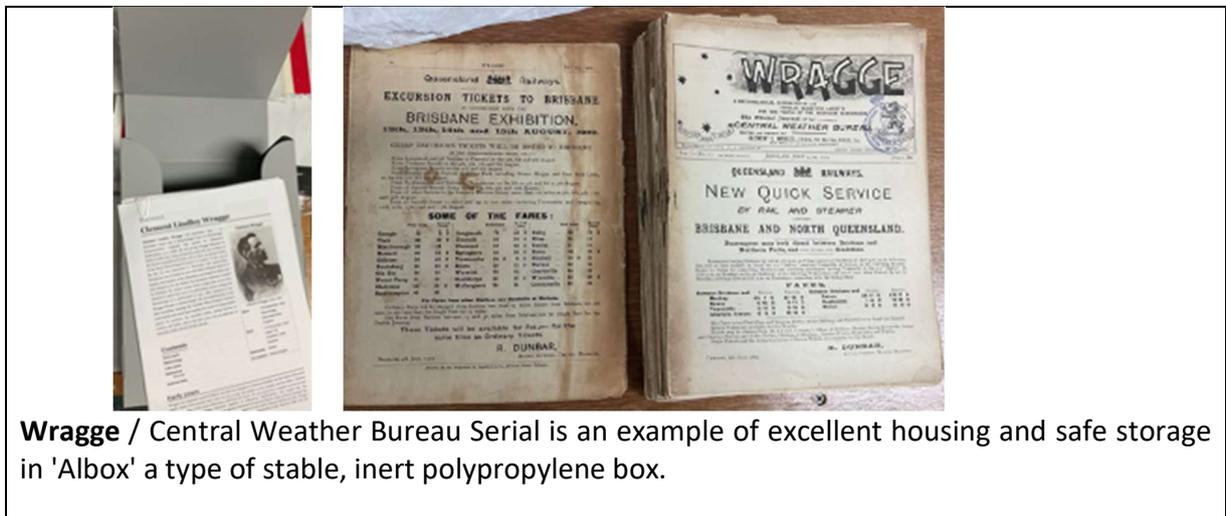
29. A79 - Old Society crest

A79 - Old Society crest: it is in poor condition. The crest needs to stay horizontal to not lose any more paint. Trace of water damages, corrosion and an important loss of paint. In this condition, minimising handling of this object is recommended. Prioritise for conservation by a professional paintings or objects conservator.

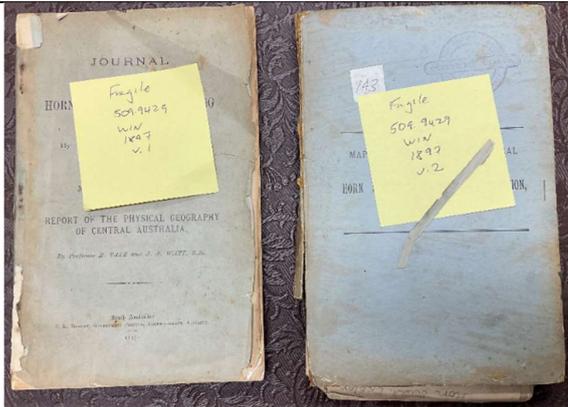
A82 - Audio tape: In good condition. Needs housing. It is a time-based media; consequently, action needs to be taken to maintain access to the information on this carrier, i.e., turned digital.

2) Library collection

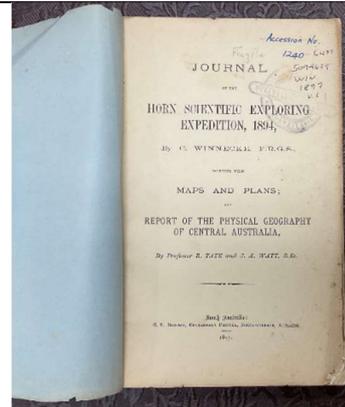
Due to the quantity of the books and journals, a sample of selected significant Library collections has been assessed for the survey. Collections in condition similar to these can be prioritised for preservation housing and conservation.



Wragge / Central Weather Bureau Serial is an example of excellent housing and safe storage in 'Albox' a type of stable, inert polypropylene box.



30. Journal of the Horn Scientific Exploring Expedition, 1894 and 1897

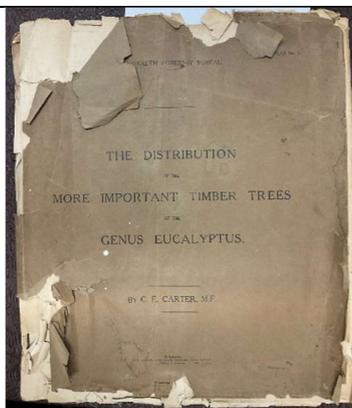


31. Journal, inside cover

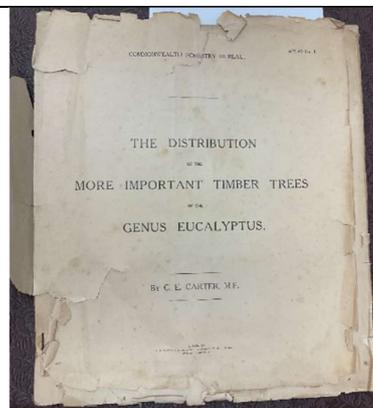


32. Journal of the Horn Scientific Exploring Expedition, foldout map in good condition

509.9429 WIN 1887 V1/V2 In fair condition, fragile covers. Protect covers from further losses by placing these journals in acid-free lignin-free paper folder.

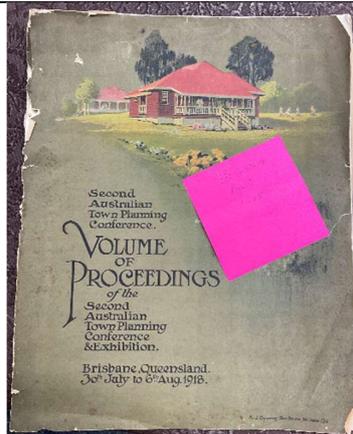


33. The distribution of the more important timber trees of the genus eucalyptus, 1945



34. The distribution of the more important timber trees of the genus eucalyptus, 1945

The distribution of the more important timber trees of the genus eucalyptus, 1945. In poor condition. If significant and not replaceable, engage a professional paper conservator to assess and quote on treatment. Place in acid-free lignin-free paper folder or box to protect from further deterioration.

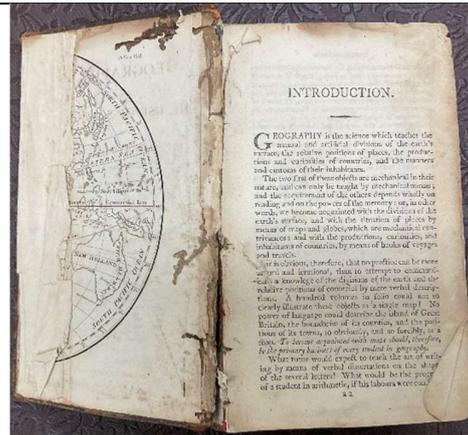


35. Volume proceedings of the second Australian town planning Conference and exhibition

Volume of proceedings of the second Australian Town Planning Conference and Exhibition, Brisbane 1918. In good condition. Protect worn covers by placing them in a paper folder, remove the adhesive note.



36. Introduction to Geography, a valuable standard schoolbook



37. Open Introduction to Geography, a valuable standard schoolbook.

Introduction to Geography, a valuable standard schoolbook. Detached covers with old pressure-sensitive tape repair. Silverfish insect damage inside front cover. If significant, prioritise for conservation by a professional paper or book conservator. Wrap in an acid-free paper folder or box.

3) Maps collection



38. MN10 Plan of the Jardine Expedition to Cape York Peninsula, 1865, reverse of sleeve

MN10 Plan of the Jardine Expedition to Cape York Peninsula, 1865. In average condition. Stored in a sleeve with double-sided tape inside, edges of map in danger of sticking to tape. Recommend storing in an acid-free lignin-free paper folder. If accessed frequently and replacement of Mylar® sleeve is required, heat seal edges or place double-sided tape on exterior of fold rather than interior with map.

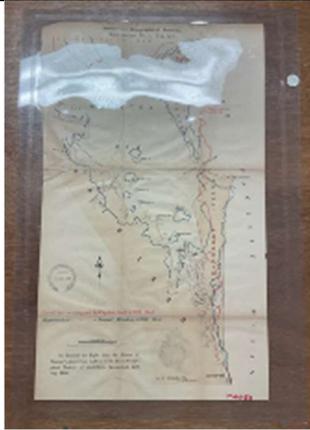


39. Detail MN19 Plan of the Jardine Expedition to Cape York Peninsula – Tape stuck to map in soft plastic



40. Detail right MN 019 Brisbane River - Site of Victoria Bridge to the Bar, the adhesive has migrated through paper fibres to reverse

MN 019 Brisbane River - Site of Victoria Bridge to the Bar. In poor condition. In soft plastic sleeve, recommend housing in acid-free paper or stable Mylar®. Pressure-sensitive tape shows cross-linked deterioration, sinking through cellulose fibres, becoming translucent and darkening discolouration. If the tape is found to be covering significant information, it is recommended to engage a professional paper conservator to assess and quote on repairs.



41. Coastline as mapped by Captain Cook 1770 and Moreton Bay as mapped by Comm'r Flinders in 1800

MN059: Coastline as mapped by Captain Cook 1770 and Moreton Bay as mapped by Comm'r Flinders in 1800

Example of a Mylar® sleeve. Unsealed areas near corners allows a small beneficial amount of air exchange. Improvement recommended: place acid-free paper behind map, slightly larger than map. Interior double-sided tape may stick to edges of plain paper first, instead of damaging edges of map. Short end of Mylar® sleeve can be left open, for safe amount of air exchange in protective sleeve.



42. Historic hanging map

MD 11 Historic hanging map, with some losses at timber hanging stave previously repaired with pressure-sensitive tape that has failed. Flat storage and paper wrapper suggested to protect from further losses. If significant, could be prioritised for conservation and digitisation.



43. Cloncurry Copper Mining District in box

GB 1,3,4,5 Cloncurry Copper Mining District – 1906, Croydon-Etheridge – 191, Cunningham's Gap Road - Longitudinal Section and Plan, Geological Map - Upper Herbert River

Good example of storage for fragile, brittle, rolled maps; wrapped inside paper, broken pieces are kept together avoiding loss and dissociation. The labels are best in pencil on the paper wrap and not on the map, as well as on exterior of box. Storing these inside an acidic cardboard temporary "phase box" protects from further mechanical damage and unnecessary handling. Ideally these maps would be stored flat or rolled at 10-15cm diameter in an acid-free lignin-free paper wrapper and in an acid-free corrugated box. If these are significant originals, engage a paper conservator to assess, quote, repair and flatten them in preparation for digitisation capture.



44. Cloncurry Copper Mining District

Summary Recommendations

1. Establish priority collections for preservation housing, conservation, and digitisation.
2. For good long-term preservation, house significant and fragile collections in acid-free lignin-free paper, card, or corrugated boxes to protect from light, dust and pests.
3. For storage of paper-based collections, acid-free lignin-free paper card folders and interleaving are recommended.
4. If limited handling and infrequent viewing access is required, store in acid-free lignin-free paper card folders with interleaving paper between each original map, watercolour, document, pamphlet.
5. If frequent viewing and handling access is required, house in clear polyethylene plastic sleeves, Mylar® or Melinex®.
6. For photos, always use materials that pass the Photographic Activity Test (*see: Resources*).
7. Paintings can be wrapped in Tyvek®, a breathable waterproof barrier, as can a number of artefacts.
8. Remove metal clips, staples, rubber bands, adhesives and post-it notes from paper-based artefact, archive, library and map collections, as these will completely deteriorate adjacent paper, causing accelerated degradation where they are in contact and possible loss of information.
9. Handling leather, metal, objects, film, cd's, negatives, slides and photographs with cotton or nitrile gloves to reduce contamination that can become permanent damage.
10. Reduce direct handling.
11. Handle items with two hands.
12. Paintings should be carried vertically, with one gloved hand at side and the other along lower edge, or as advised differently by a conservator for more fragile artworks.
13. When placing an item on a new surface for storage or viewing make sure the surface is cleaned.

Appendix

1) Environmental guidelines

AICCM Environmental Guidelines for Australian Cultural Heritage Collections (2018)

Climate Type	Temperature Range	RH Range
Temperate	15 – 25°C	45 – 55% RH ± 5
Total Temperate Range		40 – 60%
Subtropical / Tropical	15 – 25°C	50 – 60% RH ± 5
Total Subtropical / Tropical Range		45 – 65%

Provisions:

It is recommended, where possible, that relative humidity remain within the set-ranges of 50-60% (in Subtropical / Tropical climates) for the majority of the time. Short term, $\pm 5\%$ fluctuations ≤ 24 hours duration into the outer limits of the total R.H. ranges are acceptable.

It is recommended, where possible, that temperature remains within the specified range. Short term fluctuations of no greater than 4°C for ≤ 24 hours duration within the total temperature range are acceptable.

It is recommended that where seasonal adjustments are applied that the temperature and relative humidity remains within the total ranges.

Temperature and relative humidity parameters for preservation of cultural materials will differ according to their material, construction and condition, but constant conditions maintained within the parameters described above are generally acceptable for most objects in stable condition.

The Heritage Collections Council (HCC) *Guidelines for Environmental Control in Cultural Institutions*, published in 2002, was written by Professor Colin Pearson and members of the Consortium for Heritage Collections and Their Environment following two years of research and field work. The work was undertaken in response to the Cultural Ministers Council and HCC report, *National Conservation and Preservation Policy and Strategy: Australia's Heritage Collections* (1998).

2) Data Log data



45. Data, Storage room, 1st February 2021, 9:30-10 am

Temperature range 25.2 – 27.3 Degrees Celsius

Relative Humidity range 57 – 67%



46. Data, Artefact storage from Thursday 24th to Monday 27th of February 2021

Temperature range 23.1 – 25.6 Degrees Celsius

Relative Humidity range 56 – 70%



47. Data, Artefact storage from Thursday 12th to Monday 15th of March 2021

Temperature range 23.1 – 26.4 Degrees Celsius

Relative Humidity range 59 – 72%



48. Data, Library from Thursday 24th to Monday 27th of February 2021

Temperature range 23 – 27.3 Degrees Celsius

Relative Humidity range 47 – 65%



49. Data, Library from Thursday 12th to Monday 15th of March 2021

Temperature range 23.2 – 27.4 Degrees Celsius

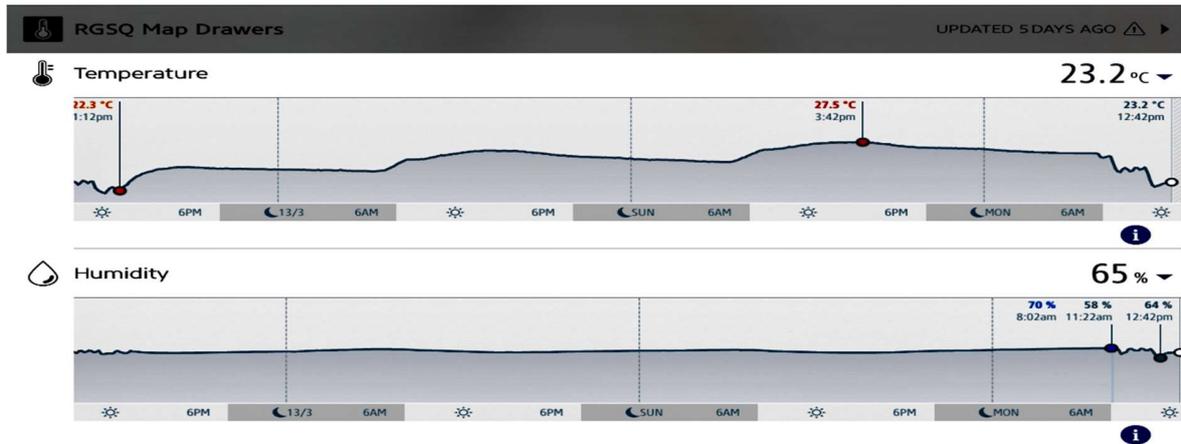
Relative Humidity range 55 – 69%



50. Data, Library from Thursday 12th to Monday 15th of March 2021

Temperature range 22.1 – 27.3 Degrees Celsius

Relative Humidity range 52 – 66%



51. Data, Map storage from Thursday 12th to Monday 15th of March 2021

Temperature range 22.3 – 27.5 Degrees Celsius

Relative Humidity range 58 – 70%

Resources

1) Collection Management

Australian Institute for the Conservation of Cultural Material (AICCM)

Environmental guidelines : [https://aiccm.org.au/conservation/environmental-guidelines/#:~:text=AICCM%20Environmental%20Guidelines%20for%20Australian%20Cultural%20Heritage%20Collections%20\(2018\),-Climate%20Type&text=Provisions%3A,the%20majority%20of%20the%20time.](https://aiccm.org.au/conservation/environmental-guidelines/#:~:text=AICCM%20Environmental%20Guidelines%20for%20Australian%20Cultural%20Heritage%20Collections%20(2018),-Climate%20Type&text=Provisions%3A,the%20majority%20of%20the%20time.)

Heritage Collections Council. (1999). reCollections: Caring for Collections Across Australia. Canberra: HCC. Volumes:

- Caring for Cultural Material 1 https://aiccm.org.au/wp-content/uploads/2020/01/1_caring_for_cultural_material_1.pdf
- Damage and Decay https://aiccm.org.au/wp-content/uploads/2020/01/3_damage_and_decay.pdf
- Handling, Transportation, Storage and Display https://aiccm.org.au/wp-content/uploads/2020/01/Handling_Storage_transport_Display.pdf

'Guidelines for small museums for writing a disaster preparedness plan' is useful when writing a disaster preparedness plan. Heritage collection council (2000); http://www.magsq.com.au/dbase_upl/beprepared.pdf

Re Collections

Collection tips and useful guidelines on Storage and Display, Planning and Budgeting, Electronic Information Media, Handling and more. <http://culturalmaterials.net/wp/>

Museums and Galleries Queensland

Museums & Galleries Queensland (M&G QLD): information on the availability of workshops and grants. <http://www.magsq.com.au/>

The Find a Resource section contains a number of museum and gallery related fact sheets, publications, useful weblinks, etc.

Search the database by selecting a category, such as Preventative Conservation, or Collection Management. Or type into the box a keyword you're looking for, such as Cataloguing, Volunteers, Risk management, etc.

<http://www.magsq.com.au/cms/page.asp?ID=7587>

National Archives of Australia:

Disaster Preparedness Manual for Commonwealth Agencies, an excellent template that can be used

<https://www.naa.gov.au/sites/default/files/2019-09/disaster-manual.pdf>

Photographic Activity Test:

<https://www.naa.gov.au/information-management/store-and-preserve-information/preserving-information/preserving-photographs/about-photographic-activity-test>

State Library of Queensland:

There are a number of information guides available on the SLQ website to assist you with caring for collections.

<https://www.slq.qld.gov.au/how-do-i/preserve-my-collection/how-guides>

Scroll down and click 'Download The Looking After Your Collections Guidelines'.

Scroll down again and click on 'Download The Digital Preservation Guides'.

Scroll further down to Preventive Conservation and click on 'Download The Preventive Conservation Guidelines'.

https://www.slq.qld.gov.au/sites/default/files/www.slq.qld.gov.au/_data/assets/pdf_file/0010/164548/caring-for-your-collections-books-and-bound-material2017.pdf

<https://www.slq.qld.gov.au/sites/default/files/0008-276236-caring-for-your-collections-photographs.pdf>

['Suppliers and guide to selecting preservation materials'](http://www.slq.qld.gov.au/resources/preserving-collections/preservation_guides/matting-and-framing) is a great resource for locating acid-free storage materials.

This guide is organised in tables by the type of collections you are storing, pointing you in the right directions for what types of storage materials to choose. For example, the extreme humidity of Queensland's summertime could eventually cause moisture damage. Storing paper-based collections and maps in acid-free paper folders and boxes is recommended over plastic. This will avoid moisture getting trapped in contact with paper-based collections. For all types of collection items, this also helps to prevent light exposure, dust, pests, and potential water damage. This could help your cool and darkened storage to slow the natural progression of age-related deterioration as much as possible.

2) Labelling

Museum of Applied Arts & Sciences (MAAS)

A Simple Guide to Labelling Museum Objects

https://maas.museum/app/uploads/2017/02/A_Simple_Guide_to_Labelling_Museum_Objects.pdf

3) De-accessioning or Donating

Once specific collections have been prioritised for de-accession from the RGSQ collections, consider asking institutions who may be interested in donations of digital or physical collections. As an example, consider starting a conversation with the right Collection Manager by sending an enquiry through "Ask Us":

Ask us | **State Library Of Queensland** (slq.qld.gov.au)

Here you'll find an option to click Donating to the collection | State Library Of Queensland (slq.qld.gov.au)

On that Ask Us page, if you scroll down, you'll also see options for phone enquiries or an online question form where the right person will respond to The Royal Geographical Society of Queensland by email or phone, whichever you prefer.

Also, there you'll find a box with Conservation Enquiry form, where you can always get in touch with one of the Conservators at the Library, with any questions on how best to store / house / protect / digitise / conserve the collections if you'd ever like further guidance or advice more specific to a certain object.

At the very bottom of that Ask Us page, you'll find a box to click that will take you to very useful informational how-to guides and videos on how to Preserve your collections | State Library Of Queensland (slq.qld.gov.au)

4) Caring for time-based media and magnetic recordings, including audio

National Archives of Australia:

Photographic Activity Test, using Materials that have passed testing:

<https://www.naa.gov.au/information-management/store-and-preserve-information/preserving-information/preserving-photographs/about-photographic-activity-test>

National Film and Sound Archives:

https://www.nfsa.gov.au/preservation/guide/home/caring-photographshttps://aiccm.org.au/wp-content/uploads/2020/01/4_managing_collections.pdf

<https://www.nfsa.gov.au/preservation/guide/home/caring-audio>

Caring for audio

INTRODUCTION

Audio collections consist of a variety of different materials, the most commonly occurring are discs (records) and tapes. Older collections may also contain cylinders.

The later and most common discs are pressed from vinyl from a master recording, while earlier 'instantaneous' recordings are made from special plastics coated onto a solid base. Magnetic tape consists of a plastic polyester backing onto which a layer of magnetic material (metal or oxide) and binder is coated. The proper care of audio tapes relies upon looking after both the base and the magnetic layer in which the sound information is contained.

HOW LONG WILL AUDIO TAPES AND DISCS LAST?

The oldest tapes stored in archives are still playable after 40 or 50 years, and discs have survived for a century or more. This potential lifespan can be considerably reduced if recordings are not manufactured, handled and/or stored correctly. Some tapes and discs have failed in less than ten years as a result of chemical instability, inadequate storage or improper handling.

When tapes last this long, other factors such as the life of the format (availability of working replay equipment) become as important as the life of the tape itself.

HOW SHOULD TAPES AND DISCS BE HANDLED AND STORED?

Sound recordings need to be handled correctly to avoid contamination or other damage. Even when your hands appear clean, traces of sweat and oil are present which can attract dust or promote mould growth when deposited on a recording.

The playing surfaces of a disc or tape should not be handled: reels of tape should be carried by the hub or centre; and discs should be held only on the edges and label. It is normally safer to use arm lifters when playing LPs or 78s, rather than raising or lowering the stylus by hand.

Unless being played or cleaned, recordings should be kept in their sleeves/boxes, which also offer physical protection and resistance to fire and water damage. Recloseable plastic envelopes with suitable liners will protect against dust, moisture and mechanical damage.

Discs and tapes should be stored in cool, dry conditions with a minimum of dust and pollutants, and shelved upright in sturdy shelves with dividing supports every 100mm-150mm. Hubs used for storing tapes should be smooth and rigid. Changes in temperature or humidity, direct sunlight, local heat sources, moisture, dust and magnetic fields should be avoided.

Cassette boxes should have projections to lock the hubs and prevent them from turning during storage or movement. Tapes and cassettes should be played to the end, leaving the tape wound smoothly with only leader or unrecorded tape exposed. Reels of tape should have the end fastened with an approved tape or packing which avoids uneven pressure.

Compact discs benefit from the same cool, dry conditions and careful handling as other sound recordings. The standard CD jewel case offers good protection for CDs and they can be stored either vertically or horizontally when kept in their cases.

WILL TAPES AND DISCS LAST LONGER IF THEY ARE NOT USED?

Tapes should be played through or respooled every few years to check their condition and to minimise any tendency for layers to stick together or to print-through magnetically.

Before reproducing any tape, which has not been used for a long time (many months or years) it should be carefully rewound 2-3 times to relieve any tension in the tape and to reduce the effect of print-through.

CAN HOUSEHOLD APPLIANCES DAMAGE TAPES AND DISCS?

Magnetic recordings on tape, cassette or disc are made and destroyed by magnetic fields. The permanent magnets in headphones and compact loudspeakers can produce a strong magnetic field which may damage the tapes if they are stored in close proximity.

Normal house wiring is not usually a problem, however high voltage power lines and lightning arresters in large buildings can produce dangerous levels of electromagnetic interference. Security scanners and X-ray equipment aren't usually harmful, but it is wise to check first, particularly with newer digital systems.

The most likely articles found in the home that can affect tapes are those with small powerful magnets, for example, magnetic flashlights, fridge magnets, small headphones, speaker cabinets etc.

CDs are not affected by electric or magnetic fields.

HOW CAN YOU CLEAN OR RESTORE TAPES AND DISCS?

Before playing, discs with light contamination (such as airborne dust) should be cleaned by hand using a suitable brush, with antistatic treatment as required. Keep a separate brush for 78's and LP's if you have both.

Clean extensive contamination, including mould, from disc surfaces and tape edges before further handling. The flanges on the tape spools may be removed if necessary. An effective cleaning solution is a 1% solution of cetrimonium bromide in distilled water (available from well stocked pharmacies). Rinse and dry with a soft cloth.

If tapes or discs get wet, remove all moisture as quickly as possible. If flooded with dirty water, rinse with distilled water, trying to minimise any more exposure than necessary. Special cleaning machines are used by archives and professional engineers for maximum effectiveness.

Warped discs may be temporarily flattened by gentle and precise heating before playing, but professional help is recommended. With tapes, any splices or leaders that show signs of deterioration should be renewed.

Clean CDs by wiping across the direction of the recorded signal – never in a circular motion. Care should be taken not to scratch the label side as it is much thinner than the clear playing surface.

WHAT EXTRA PRECAUTIONS CAN YOU TAKE?

It is a good idea to copy (dub) old, fragile or extremely valuable recordings if you wish to listen to them often. Vinyl or shellac discs may last longer than tape chemically, but they can wear out more readily through repeated playback. Playback equipment such as tape decks and turntables should be cleaned and adjusted regularly, making sure that the recordings themselves are clean.

When older recordings are being dubbed onto a new copy, electronic filtering can sometimes be effective in removing unwanted noise and the effects of wear or damage. Both original recordings and copies should be clearly labelled. If you play a really dirty CD, damage will occur. However, normal playing will not cause any wear.

SHOULD YOU USE HEAD CLEANING TAPES?

If the heads do need cleaning they should preferably be cleaned manually by a trained person. Cleaning tapes should only be used as a last resort as some types can cause premature head wear or damage. Heads and guides, rollers and other components in the tape path should be cleaned with a swab of isopropanol (rubbing alcohol). A wet cleaning tape/cassette is usually preferable to the dry, abrasive types.

CAN AUSTRALIAN TAPES BE USED ON OVERSEAS MACHINES?

Yes. Unlike video materials, the audio industry has managed to standardise its materials, and recordings manufactured anywhere in the world can be played in other countries.

HOW CAN I PROTECT MY AUDIO FROM NATURAL DISASTER?

In an emergency such as flood or bushfire, you should be conscious of which recordings are truly irreplaceable (e.g. a unique recording of baby's first words or a deceased relative) and commercial recordings or equipment which may have monetary value but which could be replaced if necessary.

You should consider safeguarding any recordings of great personal importance from extreme hazard by copying them and storing the copies elsewhere. In the event of a flood, evacuate the recordings or store in a sealed container — try to avoid them becoming wet. In the event of a fire, evacuate the recordings or bury them in a sealed container.

For professional assistance in the event of such a disaster, or if you notice unusual things happening to your recordings, seek professional advice. If tapes show any signs of shedding, sticking or squeaking, or if recordings develop a strong smell of vinegar or a 'plastic/organic' odour, this is usually a sign that they are

chemically deteriorating and probably require expert treatment. On any recording also look out for crazing, cracks or other damage, and mould, contamination or interaction with packaging.

Please note – The advice given here in regard to the care of audio material is based on best international experience and the best information available to the National Film and Sound Archive. However, given the different circumstances applying to the condition of any particular audio item we cannot be responsible for the application of this advice in any particular circumstances. To be sure of the best care of your audio item you may wish to seek specialist advice.

5) Workshops

Consider scheduling preservation training through attendance of collection preservation workshops by Conservators who are willing to travel to Brisbane to deliver on-site workshops.

Collect Preserve in Sydney offers many workshops on Caring for your Collections

<https://www.collectpreserve.com.au/workshops-1>

Sorenson Art Conservation in Cairns offers workshops including learning how to use mylar, encapsulating documents for access, phase box making for creaky old books and some basic repair techniques.

<https://www.sartconservation.com/>

<https://www.sartconservation.com/workshops-2021>

<https://www.sartconservation.com/blog/2020/2/22/the-wonderful-crew-jcu-townsville>

Lydia Egunnike, conservator in Esk, who previously worked at Queensland Museum Network and ran workshops in Heritage collections preservation. She continues to offer workshops tailored to needs.

Email: leconservation@gmail.com Phone: 0415605598

Queensland Museum Network: Many heritage collections workshop topics are available, presented by Museum Development Officers

<https://network.qm.qld.gov.au/About+Us/Services>

<https://network.qm.qld.gov.au/About+Us/Services/Museum+Development+Officers>

American Institute for Conservation (AIC) and International Institute for Conservation (IIC): Consider attending web workshops and specific course training such as those available internationally online:

<https://www.iiconservation.org/content/aicspnhc-virtual-annual-meeting-transform-2021-0>

[AIC2021 Programme \(firebird.systems\)](#)

How Museums and Communities Collaborate for Loans: Adapting Museum Loan Standards to Reach Wider Audiences

Stressed About Pests? Integrated Pest Management For Heritage Professionals

Strategic Collection Management

Identification and Preservation of Archival Materials

Description: Archives often contain crucial documentation which supports the understanding and context of museum collections. Caring for these collections appropriately is important to long-term access and maintenance but is often complicated by the wide variety of needs from different types of materials. Identifying media and choosing the right solutions for housing can help prevent physical and chemical damage, as well as maintain organisation and facilitate handling.

This workshop will allow participants to identify archival materials and plan for long-term preservation. The instructors will provide an overview of preservation threats to different types of archival collections with emphasis on identifying media and preventing deterioration and loss of information. Oversized materials, photo-reproductions such as blueprints and diazotypes, a variety of office copying techniques, and photographic media will be discussed.

This workshop will incorporate current standards and best practices to help collection managers, emerging conservation professionals, and other museum professionals master identification, preventive conservation, and housing for archival materials. \$99 USD / \$125 AUD

How to Label and Mark Your Collections

Description: Discretely and effectively labelling and marking museum collections with the catalog number (and/or other details) prevents one of the leading risk factors to collections: disassociation of objects. Museum collections must be legibly labelled for the purposes of keeping track of the physical location as well associated data and provenance specific to that object. If the label is not legible, if it is lost or damaged, or if it fails in any way, the consequences can be catastrophic and disheartening - at best, the number is visually distracting to the museum visitor and detracts from the value of the object, and at worst the object is rendered useless to scientific or historical study. This workshop will prepare participants for the decision-making process involved when choosing among the variety of techniques available to label complex collections. Instructors will begin with an overview of the standard materials used for labeling and marking, and how to choose which method would be most appropriate, based on the object substrate (such as organic, inorganic, over-sized, micro, and wet specimens). Participants will be mailed kits with course materials that will allow them to then test the adhesive and mechanical techniques on different objects, with instructors on hand virtually to offer advice and tips for success in the moment. The workshop will conclude with a group discussion on observations and questions. This workshop is geared towards natural history museum professionals and emerging conservation professionals who have not had labelling and marking experience - a valuable but often overlooked aspect of conservation training. Cost of materials is included in registration fee. \$69 USD / \$90 AUD

6) Policy Management Example

Heritage Collections Council, 1999, reCollections: Caring for Collections Across Australia Page 14

<p>1. The Mission Statement We aim to provide a place where local information and objects can be collected and stored as a means by which that information and those objects can be looked after and shared.</p>
<p>2. Acquisitions The Bank of Victoria Museum and Manager's Residence is now an established Museum, furnished with banking and domestic furniture relevant to the buildings and their community from 1858 to 1893, and to later tailoring uses of the buildings to 1969. A research collection of information and photographs is also established, also relevant to the town and communities from 1852 to the present. A small collection also exists of objects pertinent to the business of the town, from 1852 to the 1930s.</p> <p>2a. We shall continue to enhance the collection with:</p> <p>2a.1 Objects by gift or purchase only, unless for temporary display; donations with conditions will not be accepted;</p> <p>2a.2 Objects and information concerning the Bank of Victoria in Yackandandah 1860 to 1893;</p> <p>2a.3 Domestic furnishings of the 19th century relevant to the buildings;</p> <p>2a.4 Objects and information relevant to the uses of the building by the Haig family 1893–1969;</p> <p>2a.5 Information and photographs relevant to the history of the town to the present day, with particular reference to gold, family history and local business;</p> <p>2a.6 Oral and written histories of local relevance.</p> <p>2b. Collection criteria:</p> <p>2b.1 The accepted item must be relevant to the collection.</p> <p>2b.2 Documentation and provenance must be available.</p> <p>2b.3 The condition of the item must be reasonable.</p> <p>2b.4 Storage and display conditions must be suitable to the item.</p> <p>2b.5 Conditional terms will not be accepted.</p> <p>2b.6 Duplicates will not be accepted unless with particular relevant provenance.</p> <p>2b.7 The donor must demonstrate clear legal title.</p> <p>2b.8 All items are available for research or viewing; appointments may be made to view items not readily accessible or fragile.</p>
<p>3. Documentation Staff members who are directly involved and trained in the management of the collection will fully document the process of acquiring an item into the collection. All pro-formas are kept in the administration files.</p> <p>3.1 A donor form will be completed for each object, if appropriate.</p> <p>3.2 Each item will be considered by the committee before being accepted.</p> <p>3.3 On acceptance, the signed donor form copy, with letter of acknowledgment, will be sent to the donor.</p> <p>3.3a If not accepted, the item is to be returned to the donor, personally if possible, with written explanation and thanks.</p> <p>3.4 Purchased items begin at this point.</p> <p>3.5 On obtaining title to the item, an accession entry is made, the item given a number, identified, and any conservation work or protection done. A photograph may be taken, or copy made.</p> <p>3.6 Full detail is then entered on a catalogue sheet.</p>

<p>3.7 The item is then either stored or displayed.</p> <p>3.8 Indexing, copying, or use of information from the catalogue may be done.</p>
<p>4. Loans</p> <p>4.1 Short-term loans will apply in order to further the intent of the mission statement.</p> <p>4.2 Inward and outward loan forms are held in the files.</p> <p>4.3 Time limits are to be monitored.</p> <p>4a Inward loans</p> <p>4a.1 Short-term inward loans will be accepted for temporary display.</p> <p>4a.2 Completed loan forms will be kept under the file of the temporary display.</p> <p>4a.3 Documents and photographs offered for copying and return, if appropriate, may be accepted. Care must be taken that details are correct.</p> <p>4a.4 Time limits are agreed upon by both the museum and the owner.</p> <p>4a.5 Particular care will be taken with items not owned by the museum.</p> <p>4b Outward loans</p> <p>4b.1 Each request for an outward loan will be considered by the committee.</p> <p>4b.2 Time limits will be agreed upon by both the museum and the borrower.</p> <p>4b.3 Conditions of display and transport will be closely monitored.</p> <p>4b.4 The borrower will not modify, repair nor adapt any item loaned.</p>
<p>5. Storage and conservation</p> <p>5.1 Storage and display restrictions must be considered before acceptance of an item.</p> <p>5.2 Upgrading storage and conservation work areas is a high priority (a new building is planned. Sponsorships are being currently sought to finance the project).</p> <p>5.3 Temporary storage to be organised, not available to the public, to be the best we can do (not on the floor, nor piled high, nor inaccessible).</p> <p>5.4 Staff and visitors to be trained in the correct handling of items. Particular staff are trained in the correct handling for processing of items.</p> <p>5.5 Housekeeping will be efficient and regular. This will include checking for pests and atmospheric deterioration. Pest control is to be regular.</p> <p>5.6 Light and climatic conditions will be monitored and regulated.</p> <p>5.7 Archival quality materials will be used for conservation, preservation and storage.</p> <p>5.8 A copy of the accession register, and where possible, up-to-date catalogue sheets, will be kept separately.</p>
<p>6. Deaccessioning may occur when:</p> <p>6.1 The object is clearly owned by the Society and:</p> <p>6.1.1 the object is of no further relevance or use to the purposes of the collection;</p> <p>6.1.2 the object is damaged beyond repair;</p> <p>6.1.3 the object has been stolen with no hope of return;</p> <p>6.1.4 the museum has identical objects, with identical provenance;</p> <p>6.1.5 the object in question has no provenance nor known local connection;</p> <p>6.1.6 the object is not within policy;</p> <p>6.1.7 there is a reasonable request for return from the donor or family.</p> <p>6.2 Disposal may be by:</p> <p>6.2.1 return to donor;</p> <p>6.2.2 exchange, gift or sale to another museum or institution;</p> <p>6.2.3 use for hands-on in the museum or outside;</p>

6.2.4 public tender or sale;
6.2.5 destruction or recycling.

7. Review.
This Policy will be reviewed at the Annual General Meeting.

7) Caring for your collection: metal objects

American Institute for the Conservation of Historic and Artistic Work:

https://www.culturalheritage.org/docs/default-source/resources/outreach/metalobjects.pdf?sfvrsn=7507fa3a_6



HOW TO PROTECT YOUR METAL OBJECTS

Tools, jewellery, toys, sculpture, tableware, furniture, kitchenware, and almost any other item can be made from metal. Metals gold, silver, copper alloy, pewter, and iron to name just a few are produced from ores that are found in nature and are processed, or smelted, from a stable mineral state to a less stable metallic state. Almost every metal material you will encounter will be an alloy a mixture of more than one metal. Metals are mixed to achieve certain qualities in the finished alloy like color, strength, or corrosion resistance. Metals are also often layered together, as in the case of silver plated on a base metal substrate or tin plated on an iron substrate.

The primary means by which metals deteriorate is through corrosion. Most metals corrode on contact with water, acids, bases, salts, oils, aggressive metal polishes, and other chemicals. They will also corrode when exposed to gaseous materials. Other sources of deterioration for metal objects include breakage, dents, and scratches from accidents or mishandling.

Noble metals like gold and silver corrode less readily than baser metals like iron, tin, and lead. Gold, for example, truly does not corrode. Silver can suffer from sulfide-related tarnish and can corrode under very aggressive conditions such as in archeological contexts, but is fairly stable. Less noble metals, such as copper alloys, corrode more readily; base metals such as iron corrode very easily. Because metal is electrically active, galvanic corrosion can occur when two metals are in direct contact with each other. The base metal will contribute electrons to the more noble metal creating an electric circuit. This causes preservation of the more noble metal and corrosion of the more base metal.

Cleaning and Handling

One of the sources of damage to metal is improper handling and carelessness. Oils and acids that are continuously secreted through human skin are deposited on metal surfaces during handling, where they cause corrosion and pitting. As experienced gun collectors and jewellers can attest, the actual pattern of a person's fingerprint can corrode into a metal surface. Metal objects should always be handled with clean, white cotton gloves, or vinyl gloves with a pair of cotton gloves over them to further prevent sweat from passing through to the object. If items are handled with bare skin or are used, as in the case of tableware, they should be carefully cleaned before storage or display to remove these deposits and prevent corrosion from skin acids and oils. White gloves are recommended because it is easy to determine when they become soiled and need to be washed.

Careless handling can also lead to denting, bending, or breaking metal artifacts. It is best not to overestimate the strength and resiliency of metal pieces; they are often weaker or more brittle than one anticipates. Extra caution in handling can prevent serious damages that can be expensive to repair.

Metal objects should be kept free of dust, debris, and oily residues. In general, it is not a good idea to routinely polish or aggressively clean metal pieces. Each time a piece is polished or cleaned, a thin layer of the surface is ground off by the cleaning tools, the abrasives in the polish, or is dissolved away by strong chemicals in cleaning solutions. Repeated polishing or cleaning with chemicals such as dipping solutions will gradually eat away plating, surface decoration, engraving, maker's marks, and monograms. Eventually, holes will form in the body of the metal object. As an example, many people will use a wire brush on an electric drill to clean away rust on old iron objects like tools. This is very aggressive and may remove important surface features like the maker's stamps or historically important signs of use. It is best to use the most mild and non-abrasive methods for cleaning metals.

The Environment

A controlled environment is one of the most important elements in the preservation of your metal objects. Excessive humidity is a leading contributor to the corrosion of metal. It is important to keep the relative humidity below 55 percent in areas where you keep important metal artifacts. You can use dehumidifiers and air conditioning to limit the amount of moisture in the air. Avoid storing your items in the basement, where the relative humidity is often far too high. Metal artifacts from an archeological context such as bronze and iron should ideally be kept at an even lower relative humidity, below 40 percent.

Another aspect of the environment that is critical to the preservation of metals is air pollution. Fine dust and debris in the air can accumulate on metal surfaces, where it attracts moisture and encourages corrosion. Keeping metal objects dust-free or carefully covered with dust covers can prevent this type of corrosion.

Gasses in the air also attack metals. Gasses from car exhaust, rubber products, and cigarette smoke cause silver and copper alloys to discolor and corrode. The characteristic tarnish on silver is black silver sulfide. Acidic gasses from wooden cabinets and cases can also cause metal corrosion. Vapors produced by plywood and other products that off-gas formaldehyde cause lead alloys and other metals to corrode, forming wispy white crystals often confused with mold growth. Keeping metal objects in a clean, dry, safe environment can prevent deterioration from environmental sources.

Storage and Display

Metals, in general, should be stored with inert storage materials. For example, metallic cabinets and shelving should be used rather than wood cabinets and shelving as many woods and wood products, like plywood, emit acids and other gasses that cause metals to corrode. Acidic newsprint and cardboard boxes also should be avoided. Acid-free, lignin-free wrapping paper and boxes are better. Clean, soft cotton cloth can also be used.

Silver, for example, can be stored in “silver cloth” available through jewelers’ and fabric stores. Silver cloth will drastically slow the rate at which your silver will tarnish by preventing sulfur gasses in the air from reaching the surface of your silver piece. Silver cloth, however, should be changed every few years to remain effective. As the compounds in the cloth complex with gasses, they become used up and may eventually be holding the oversaturated pollutants in close contact with your silver. Washing and re-using silver cloth is not effective so it is advised to buy new.

Storage containers, called housings, should also provide adequate physical protection for your objects. They should be suitably padded to prevent direct contact with other metal surfaces that can lead to corrosion. Padding also prevents denting, scratches, and other physical damage. For example, silver cloth is soft and will not scratch. It is thick, like flannel, and provides padding that will help prevent small dents and dings.

Metals objects, even large ones like farm implements or automobiles, should always be covered to protect from dust build up. Clean cotton sheeting can be used to make removable dust covers.

When Disaster Strikes

For metal objects, the most serious threat from a disaster is water damage. Metal objects that have become wet during an emergency should be rinsed with clean distilled or deionised water as soon as it is practically possible. If distilled or deionised water is not available, tap water will suffice until the object can be examined by a conservator. The rinsed objects should then be dried as quickly as possible to prevent corrosion. Clean cotton or paper towels can be used. If conditions are such that dry towels are not available, objects can be placed in the warm sun to dry. Be very careful not to scratch objects by wiping off grit or soil or by using towels that are dirty or gritty. Metal objects should not be left wet; they will quickly corrode. Other questions about preserving your metal objects after a disaster can be answered by a local conservator.

When to Consult a Conservator

If your object requires special intervention like repair, replating, or replacement of missing parts, you should contact an objects conservator. They will give you advice about the safest means by which to conserve and restore your special items. Visit AIC’s Find a Conservator at www.conservation-us.org to find a qualified conservator in your area.

8) Caring for your collections: books and bound material

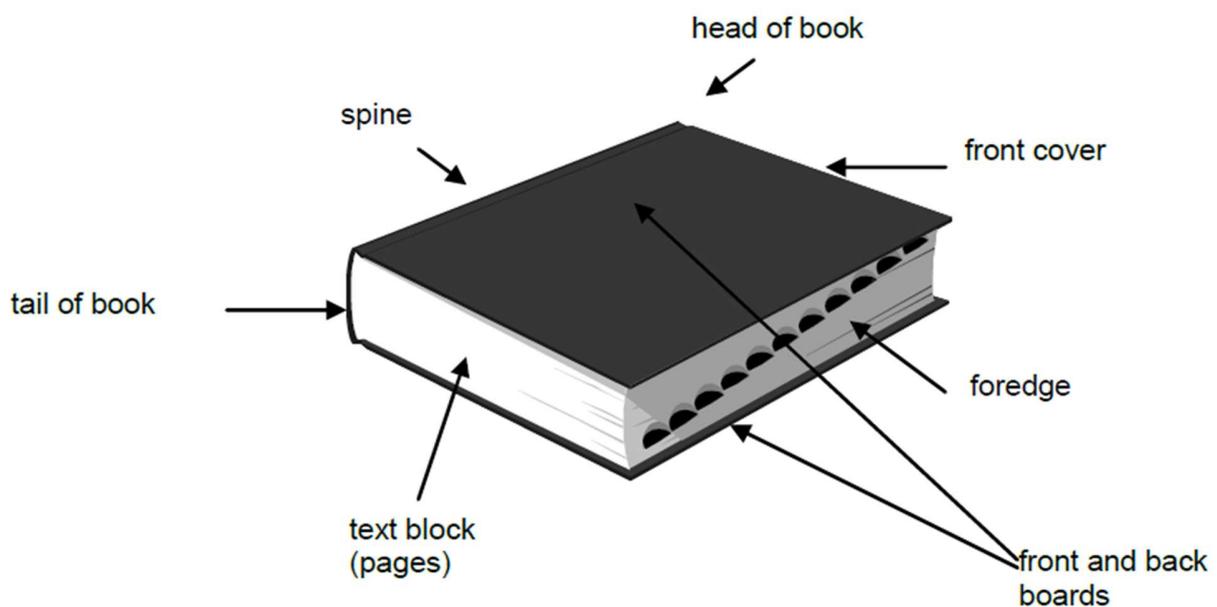


Info guide

This leaflet provides general guidelines for the care of bound volumes, including printed and manuscript material. It outlines what causes deterioration and methods for minimising further damage.

Book structure

A book is a mechanical object and is made up of a number of parts. If any of these parts fail, the usability of the book is compromised.



What causes damage?

- **Paper quality** is an important factor in a book's stability. The most stable type of paper is made of cotton, hemp, or linen fibres. Unfortunately, it is uncommon for modern publishers to use these types of material. The majority of books are made from wood pulp. The lignin in wood pulp reacts with moisture, heat, and light causing the paper to become discoloured and brittle. Old paperbacks and newspapers provide graphic examples of these deterioration processes.
- Harmful acidic by-products produced from **poor quality storage enclosures** can have a damaging effect on books.
- **Warm, humid conditions and poor air circulation** encourage the growth of mould and insect activity causing irreparable damage. Paper and boards will warp.
- **High temperature and humidity** accelerate chemical deterioration.

- If conditions are **too dry**, paper will become brittle and weak, causing tearing and cracking. Leather bindings may crumble and split.
- **Light** is another potential cause of damage to your book collections. Light fades inks, dyes, leather, and book cloth and speeds up chemical deterioration. The ultraviolet and visible components of light are responsible for much of the damage. Sunlight and fluorescent lights are strong sources of U.V. and visible light.
- Due to the mechanical nature of books, **the way we handle and use** books will greatly affect their long-term stability. For example, damage is caused by pulling books off the shelf by the top of the spine. If a book will not lie flat, do not force it to open further. Always support the covers when a book is open.
- **Oxidant, acidic, and sulphating gases** attack all components of books and cause leather and paper to become brittle. Nitrogen oxides and ozone are two of the worst offenders.
- **Airborne pollutants** such as soot and ash particles from manufacturing processes may be greasy, abrasive, and chemically or biologically active. This can settle on shelves and books and create dust that can abrade materials when handled.
- Books can become weak and brittle when stored in close proximity to **environmental fumes** from wood, paints, varnishes, poor quality paper, or plastic products, and fumes from common cleaning solvents.
- If possible, avoid storing books in **wooden or wood by-product shelving** as damage can be caused by off-gassing of harmful pollutants such as formaldehyde and acetic acid. This is particularly a problem if there is poor air circulation as pollutants can build up to harmful levels. Please see our guide on *Storage Furniture* for more information.

What you can do

- To minimise deterioration caused by damaging levels of moisture, heat, and light, it is important to **create a stable environment**.
- Prevent dramatic fluctuations in temperature and humidity. The recommended conditions for books lie between 19°C-21°C and 45%-55% relative humidity. Although these conditions are very difficult to achieve without humidity-controlled air-conditioning systems, it is possible to lessen fluctuations with a few simple steps:
 - Avoid placing bookshelves on external walls. External walls are subject to much greater daily fluctuations in temperature and humidity than internal walls. If possible, use a room with solely internal walls and good ventilation.
 - Avoid areas where sources of heat and moisture are located (e.g. bathrooms, kitchens, and laundries).
 - Store and display books away from direct light. Avoid areas near windows where sunlight may fall on books or under other sources of light such as lamps and overhead lighting.
 - Avoid exposing book collections to internal sources of airborne pollutants such as photocopiers, cleaning products, and poor quality shelving.
 - In areas of high levels of external air pollution (e.g. busy roads and industrialised areas), place valuable books in **archival storage boxes** to prevent particulate matter settling on outside of books. Thorough cleaning of shelves and books on a regular basis will also assist in minimising build-up of harmful particulate matter and pest activity.

- It is important to **choose shelving carefully** as some material can cause damage to your collections:
 - Wood or wood-based shelving (e.g. MDF, plywood, chipboard etc.) produces acidic volatile organic compounds (VOCs) which can cause degradation of leather bindings and discolouration of text pages. Direct contact with wood causes brown spotting on paper known as "foxing". If you have to use this type of shelving, line each shelf with polyester sheeting to prevent books from touching the wood. Allow space between the books and the back of the shelf and ensure there is a small amount of space between each book. This will increase air circulation and make it easier to safely retrieve books.
 - It is also wise to avoid storing collections in glass fronted wooden bookcases. The VOCs emitted from the wood can be trapped inside. If enclosed wooden bookcases must be used, mitigate against pollutant build-up, by lining the shelves with polyester and regularly leaving doors open to allow dispersion of the VOCs.
 - The best choice of bookshelf is powder-coated steel or anodised aluminium shelving. Neither of these materials produces harmful by-products. Baked enamel shelving will emit harmful gases if it has not been cured properly. A cheap, suitable option is galvanised steel shelving which is safe to use as long as it does not become rusty.
- With any shelving, it is important to ensure correct shelf loading.
- To minimise pest and mould activity, keep books and shelving free of dust and dirt. Store book collections away from sources of food or moisture. Regularly check for signs of pest and mould activity. Sticky insect traps (also known as blunder traps) can be strategically located to monitor the variety and quantity of insect activity. (Please refer to our guide on *Pest management* for further information).

Storage Methods

Small and medium sized volumes in good condition may be stored either upright on shelves or within folders or boxes.

- Similarly, sized volumes should be shelved together to ensure uniform support, thereby discouraging warping of the boards or other physical distortion.
- When storing books on shelves ensure they are held vertically without jamming them in tightly. Packing books tightly places them under continual lateral stress and significantly prevents air circulation.
- Do not allow books to lean or slant.
- Bookends should not have sharp edges.
- There are several options for the storage of damaged volumes:
 - Weak volumes can be wrapped in strong archival wrapping paper or an archival folder and stored flat.
 - The ideal storage for a damaged volume is in **archival quality boxing**. These can be hand or custom made – please see our guide *How to make an archival corrugated phase box* or commercially purchased (e.g. pre-fabricated corrugated board box or polypropylene box).
 - Storage enclosures should be made from either acid-free, lignin-free, alkaline buffered paper, or board (if possible 100% cotton cellulose fibre) or chemically

stable plastic (e.g. uncoated polypropylene). Ready-made boxes can be purchased from a number of conservation suppliers and at the *Library Shop* ph. 07 3840 7576). You can also make your own box like the one shown (right) by following the instructions provided in our guide *How to make an archival corrugated phase box*. Ensure you use appropriate board.

- Slipcases are not recommended as volumes suffer abrasion when being removed and light damage can occur along the exposed spine.



52. Acid-free lignin-free corrugated "Phase" Box with tuck-in tabs, made without adhesive

Handling

- The mechanical nature of books results in damage caused by wear and tear. Careful handling can minimise this type of physical weakness.
- Always open a book gently. If you force open a book beyond the point of resistance, the spine will crack. This often happens with paperbacks as they are glued not sewn. Spine damage is also caused by forcibly flattening open books. This often happens when people photocopy or scan books.
- When displaying bound material open, use a book cradle or pillow designed to support the spine. Do not display material open for long periods. Regularly change pages to minimise light exposure.
- Avoid licking your fingers to turn pages. As well as introducing moisture to the paper, page corners become creased and crushed.
- Avoid "dog-earing" page corners as creasing will cause page corners to become weak and fall off.
- Always wash and dry hands thoroughly before handling books. Nitrile or white cotton gloves can be worn.

- Avoid eating or drinking around your collections.



Never remove a book by the top of the spine as this can cause significant spine damage.



Always push the books on either side back and pull out volume from the middle of the spine.

9) Caring for your collections: Photographs



Info guide

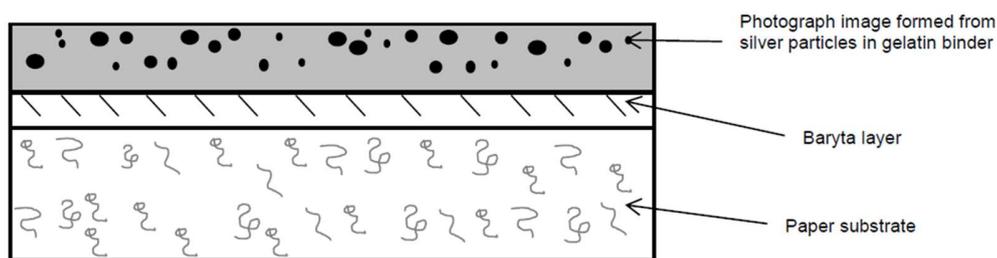
This guide aims to provide general information and advice for the care of photographs. For details on conservation of specific photograph processes please see the additional resources listed. With the advent of digital photography, digital file preservation is another important aspect of caring for photographs, however this is outside the scope of this guide.

Materials

Photographs generally have a layered structure consisting of a binder (or emulsion) layer containing the image forming substance on a support material such as paper or glass. Other layers may be present such as a baryta layer, coatings, hand colouring or mounting materials. As an example of the layered structure of a photograph see the schematic cross-section below. Variables in the layer structure may be present due to the photographer practices, availability of materials, or the technology of the time.

Photography has been characterised by a continual evolution of photograph processes. This has left a diverse legacy of photograph materials including metals, glass, plastics, paper, gelatin, albumen, pigment, ink, dye, and even ceramic and leather among other things. For further information on identification of photograph materials and processes please see the additional resources listed. The Image Permanence Institute's *Graphic Atlas* is a good starting point (www.graphicsatlas.org/).

General layer structure of gelatine silver (black and white), fibre based print



Caring for your photographs

All materials used to create photographs are subject to some form of deterioration. The longevity of photographs is dependent upon the materials themselves, environmental conditions, storage, housing, and handling. With this in mind, focussing on the following levels of protection will help to preserve your collection.

Environmental Conditions and Storage

Maintenance of a stable storage environment is crucial to the longevity of photographs. The environmental factors that affect their preservation are relative humidity (R.H.), temperature (T); air quality; light; biological agents; and handling and housekeeping practices. These factors are often interrelated.

Temperature (T) and Relative Humidity (R.H.)

Extremes and fluctuations in T and R.H. can cause considerable damage to photographic material.

High R.H. (above 60%) will encourage mould growth and insect activity. Gelatine emulsion can swell and stick to surrounding materials. High R.H. can contribute to chemical reactions such as the formation of silver "mirroring". Very low R.H. (below 20%) can cause flaking of photographic emulsions and brittleness of paper supports and mounts. Dramatic fluctuations can cause structural damage such as warping of paper supports and cracking of binder layers.

There are various specific recommendations for T and R.H. storage conditions according to different photograph and negative materials. Bertrand Lavédrine's book *Photographs of the Past, Process and Preservation* provides a very useful table of recommendations (2007, p. 283). Collecting institutions often work to these set points recommendations, but they may not be realistic for personal collections in the home. The general theory is that cooler storage temperatures will result in a longer lifespan for collection materials. Selecting a cool and stable environment with minimal T and R.H. fluctuations will be very beneficial for your photograph collection.

- Minimise fluctuations in T and R.H. by locating storage and display areas away from external walls and sources of heat and moisture such as kitchens, bathrooms, attics, and basements.
- Create a buffer against ambient conditions by placing objects into storage boxes.
- Keep areas clean and regularly check for pest and mould activity.



The damage on the glass plate negative (above) occurs when the gelatine emulsion swells and contracts in response to changes in humidity. The emulsion eventually lifts completely off the glass base causing large areas of image loss.

Light

Visible and ultraviolet (U.V.) light can cause irreversible damage to photographs. Damage from light can cause fading, colour shift and contribute to chemical reactions resulting in discolouration and brittleness.

- Limit exposure to light.
- Avoid storing or displaying photographs in areas of direct sunlight or under artificial lighting.
- When displaying photographs, short display periods are recommended.
- For permanent display, use duplicate prints and place the original in appropriate storage.

- Keep incandescent light sources away from objects to prevent increase in surface temperature.
- Fluorescent tubes should be covered with U.V.-absorbing sleeves or covers, or replaced with non U.V.-emitting tubes.

Air Quality

Airborne pollutants, such as oxidant, acidic, and sulphating gases attack all components of photographs and cause silver images to fade, discolour and mirror, and paper and board supports to deteriorate.

Sources of indoor airborne pollutants include volatile organic compound (VOCs) (including formaldehyde and hydrogen peroxide) from wood and wood products, paints, and varnishes; poor quality paper or plastic products; and fumes from common cleaning solvents. Particulate matter such as dust, greasy, abrasive soot, and ash particles can settle on shelves and collection materials. Pollutants have a greater effect on objects when the humidity is above 35%.

- Keep collections boxed and away from pollutant sources.
- Keep storage areas clean.
- If air-conditioned, install gaseous and particulate filtration systems.
- Avoid shelves, cabinets and boxes made of wood and wood by-products.
- Powder coated steel or anodised aluminium shelving is recommended.
- Many commonly used items such as paint, cleaning solutions, and photocopiers emit VOCs and should not be used near collections.

Housing

The use of appropriate housing is a significant factor in the care of collections. Be aware that many available materials for storing photographs are labelled 'archival', 'acid-free', and 'photo-safe' despite containing harmful components that can cause damage. Purchase storage material through a reputable conservation supplier and always request product specifications. Ideally, enclosures should meet the International Standard 'Photographic Activity Test' (PAT).

Consider the use of the object being housed, as well as the design and chemical stability of the enclosure. Damaged photographs may require conservation treatment, or specialised housing, in which case seek advice from a photograph conservator.

Photograph albums

- Select album styles that allow prints to be safely removed such as those with slide-in polyester or polypropylene pages (e.g. Albox polypropylene albums). If attaching prints to album pages or mountboard, use a reversible system such as polyester photo corners. Avoid sticking prints down with glue as over time glue can become discoloured and cause staining.



53. (7571 Lavarack Family Album, John Oxley Library, State Library of Queensland)

Historic or original photo albums should be retained if important to the history of the object. In this case, albums can be boxed or wrapped in archival paper.

- Interleaving with archival (PAT passed) tissue is sometimes recommended and should be done judiciously as it adds bulk to the album and places stress on the binding.
- Leave photographs in original albums. You may damage the prints by trying to remove them and compromise the integrity of the album as a historical record. Pages can be carefully scanned or photographed to create a digital copy.

Plastic pockets / sleeves

- Suitable plastics for photograph housing are uncoated polyester ('Mylar') or polypropylene.
- Plastic sleeves can be a good option where original items are heavily accessed.
- In areas of high humidity be mindful of plastic housing as photographs may swell and stick. To help mitigate this risk, add a piece of unbuffered archival paper in behind the photograph.
- **Never laminate photographs** (or any valuable documents). The process is irreversible and damaging. Uncoated polyester ('Mylar') or polypropylene sleeves provide a safe alternative.

Paper folders / sleeves / enclosures

- In areas of high humidity, use paper-based storage systems.
- House photographs individually in seamless paper enclosures.
- A good paper choice for housing is sleeves made from pure cotton cellulose paper, often called 'rag' paper in art shops.
- To make your own seamless paper folder, refer to our guide "*How to make a four flap enclosure*".

Boxes

- Storing loose photographs in appropriate enclosures, flat and stacked in boxes is suitable for most materials. You may choose to store individual photographs vertically in boxes with rigid dividers to prevent slumping. Never place anything on top of damaged, flaking or brittle collection items.

When boxing glass plates, they should then be arranged vertically on their long edge. Glass plate negatives should never be stacked; given their weight and fragility, the bottom plates will be susceptible to breakage.

- Pack boxes out with conservation grade materials to minimise object movement during handling.
- Where appropriate, label boxes 'fragile/glass' and 'heavy'.

- Ensure shelving has adequate strength to hold the weight of the boxed items.
- To make a storage box, refer to our guide "*How to make an archival corrugated phase box*".

Handling

- Always handle your collection using clean hands.
- Hold photographs by extreme edges or use clean cotton or plastic nitrile gloves.
- Fingerprints are extremely damaging to photographs. Over time, the acids and oils from your skin can discolour or fade the image and etch into the surface of the photograph binder.
- Handle objects carefully to avoid mechanical damages such as crescent shaped handling dents, creases, tears, and cracks in the photograph.
- Use a support such as a piece of clean board to handle large or brittle objects.
- Avoid the use of rubber bands, post-it notes, and metal fasteners such as paper clips and staples as they can stain or rust prints. These can be replaced with plain white paper wraps (office paper manila folders acceptable for mid-term storage, acid-free preferable for long-term storage).
- Digitise or make copies of important, damaged, or heavily used photographs. Use the duplicates as working copies and carefully store the originals.
- Do not repair photographs with pressure-sensitive tape. This material is extremely damaging over time. Consult a professional photograph conservator to undertake conservation treatments.

To label photographs

- Use a very soft graphite pencil (e.g. 2B or 4B) on the edge of the back of the print.
- Place the photograph face down on a clean, dry, hard surface and write gently as pressure can damage the photographic emulsion.
- Do not use pens or markers as they can bleed through and stain the front of photographs.

Useful Websites and Texts

- AICCM Australian Institute for Conservation of Cultural Material www.aiccm.org.au
- AIC American Institute for Conservation www.conservation-us.org
- Image Permanence Institute, *Graphic Atlas*, Rochester Institute of Technology, www.graphicsatlas.org
- Image Permanence Institute, *Image Permanence Institute*, Rochester Institute of Technology, www.imagepermanenceinstitute.org/
- Baldwin, Gordon, and Jürgens, Martin C, *Looking at Photographs, A Guide to Technical Terms, Revised Edition*, Getty Conservation Institute, Los Angeles, 2009
- Jürgens, Martin C, *The digital print: identification and preservation*, Getty Conservation Institute, Los Angeles, 2009
- Lavédrine, Bertrand, *A Guide to the Preventive Conservation of Photograph Collections*, The Getty Conservation Institute, Los Angeles, 2003
- Lavédrine, Bertrand, *Photographs of the Past, Process and Preservation*, The Getty Conservation Institute, Los Angeles, 2007

- Pénichon, Sylvie, *Twentieth-century color photographs: Identification and care*, California Getty Conservation Institute, Los Angeles, 2013
- Reilly, James M, *Care and Identification of 19th-Century Photographic Prints*, Eastman Kodak Company, 1986
- Wilhelm, H., *Wilhelm Imaging Research*, <http://www.wilhelm-research.com/>. At this website you can also download for free Wilhelm, H., *The Permanence and Care of Color Photographs*, Photographs Preservation Publishing Company, 1993
- Find a conservator in private practice through the Australian Institute for Conservation of Cultural Material (AICCM) www.aiccm.org.au

Suppliers

Albox

75 Manton Street,
Hindmarsh, SA, 5007
Tel : 1300 799 209 or 08 8241 7899
Fax : 08 8241 7866
Email : reception@albox.com.au
Website: <https://www.albox.com.au/>

Archival Survival

Tel: 1300 78 11 99
Fax: 1300 78 11 46
Email: info@archivalsurvival.com.au
Post: P.O. Box 1139, Doncaster East Vic 3109
Website: <https://archivalsurvival.com.au>

Brisbane Digital Images

Shop 7, Milton Central
8-16 Barooka Road,
Milton, QLD, 4064
Tel : 07 3511 6151
Email: info@brisbanedigitalimages.com.au
Website : <https://brisbanedigitalimages.com.au/>

Zetta Florence

197B Brunswick St
Fitzroy VIC 3065
Tel: 03 9039 5583
Email: info@zettaflorence.com.au
Website: <https://zettaflorence.com.au>

Bibliography

Australian Institute for the Conservation of Cultural Material (AICCM) 2014, Environmental Guidelines Taskforce report: An interim position – April 2014, Australian Institute for the Conservation of Cultural Material, Viewed 18 October 2019

[https://aiccm.org.au/conservation/environmental-guidelines/#:~:text=AICCM%20Environmental%20Guidelines%20for%20Australian%20Cultural%20Heritage%20Collections%20\(2018\),-Climate%20Type&text=Provisions%3A,the%20majority%20of%20the%20time.](https://aiccm.org.au/conservation/environmental-guidelines/#:~:text=AICCM%20Environmental%20Guidelines%20for%20Australian%20Cultural%20Heritage%20Collections%20(2018),-Climate%20Type&text=Provisions%3A,the%20majority%20of%20the%20time.)

American Institute for the Conservation of Historic and Artistic Work: Caring for your Treasures

https://www.culturalheritage.org/docs/default-source/resources/outreach/metalobjects.pdf?sfvrsn=7507fa3a_6

Ambrose, T & Paine, C. (2018). Museum Basics. London: Routledge

Brisbane climate data: <https://en.climate-data.org/oceania/australia/queensland/brisbane-6171/>

Donaldson j (2003). Queensland Women’s Historical Association Inc. Miegunyah House Documentary Archive Collection. Conservation Consultant, The Whole Story

‘Guidelines for small museums for writing a disaster preparedness plan’ is useful when writing a disaster preparedness plan. Heritage collection council (2000); http://www.magsq.com.au/_dbase_upl/beprepared.pdf

Heritage Collections Council, 1999, reCollections: Caring for Collections Across Australia, HCC, Canberra, <https://aiccm.org.au/conservation/collection-care/>

International Council of Museums – Committee for Conservation (ICOM-CC) 2014, .Joint declaration on environmental guidelines, International Council of Museums - Committee for Conservation, Paris, viewed 18 October 2019, <<http://www.icom-cc.org/332/-icomcc-documents/declaration-on-environmental-guidelines/#.XalPOegza71>.

Authorship

Jennifer Loubser

Professional Member of AICCM

Jennifer Loubser is a conservator of fine artworks on paper who works for museums, institutions, and private collectors. She specialises in conserving traditional Asian paintings, and she is also experienced in working with contemporary and antique artworks on paper. Since 2004, she has worked with collections and collectors in America, Asia, and Australia. She trained in Japan and in South Korea, and has worked in the National Palace Museum Seoul, Honolulu Museum of Arts, Thangka Conservation Centre Bhutan, Art Galleries of New South Wales and South Australia, Queensland Art Gallery, Queensland State Archives, State Library of Queensland, and for many galleries and private collectors across Australia.

She began her Master's study in 2005 at the University of Hawaii Library Preservation Department. There she was a part of the conservation team's flood recovery efforts for the University archives and map collections after the 2004 100-year flood. After training and working as an Asian Paintings Conservator for 7 years in Honolulu and South Korea, Jennifer completed her Master's qualification at Melbourne University in 2012 as a Conservator of Cultural Materials. She then moved to Brisbane as a Conservator of East Asian Paintings in private practice. In 2014 she became an accredited peer-reviewed Professional Member of AICCM and began working as a Paper Conservator at State Library of Queensland. Her professional goal is to preserve and return artworks to their original brilliance while respecting their authenticity and original value, so these distinguished artistic traditions may be shared with future generations.

Maïté Le Mens

Professional Member of AICCM

Maïté Le Mens was born in France, where she lived and studied up to 2011. In September 2011, she moved to Australia in September after the 2011 Brisbane floods. Many artworks needed conservation. Since 2019, Maïté is dual citizen French-Australian.

In 2010, she completed a Master Degree in Conservation and Restoration of Works of Art, with a painting major, at the Ecole de Condé in Paris. During her study, she was able to do one year of paper conservation, learn about frame repair, gliding and preventive conservation.

In 2015, she finished her European Master of Fine Art, Restoration of cultural heritage. During her study, she had the privilege of an internship at the Musée du Louvre, the opportunity to intern in private studios in Lyon, Paris, Florence and Syria. For instance, she was involved in a school programme conserving frescos of the 11th-12th centuries and 19th-century icons with Syrian conservators and teachers from the Belgium school La Cambre.

Those different trainings have given Maïté a full understanding of the artworks placed in her care.

Maïté is a Professional Member of the Australian Institute for the Conservation of Cultural Material (AICCM). In other words, peer conservators-restorers and professionals reviewed her qualifications and skills. From 2017 to 2020, Maïté held the Secretary position of the Queensland Division of AICCM.

Maïté has been working as an Art Conservator and has developed additional skills in Project Management and Office Practice. In 2018, Maite Le Mens and Jennifer Loubser launched Studio 204.