

The Movers of Light: shifting the photograph collections of the Alexander Turnbull Library

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ABSTRACT

A refurbishment of the National Library of New Zealand's Wellington building was planned for 2010-2012. For the 18 months prior to departure from the building, Conservation staff planned and completed 'Pre-pack Projects' to ensure the protection of all heritage collections during the move to temporary storage and during the refurbishment of the Library building. This paper focuses on measures undertaken to protect the Alexander Turnbull Library's Photographic Archive during this period.

Numbering approximately five million items, the Photographic Archive is the largest and most comprehensive photographic collection in New Zealand; it contains many high profile and high-use collections. Due to its size it was essential to prioritise requirements to ensure appropriate protection across the entire collection. The aim was to strike a balance between optimal protection and what could realistically be achieved within the available time and resources. Priorities were inventories and rehousing, including packaging for items such as photograph albums and large collections. Some internal moves, for example the glass negative sequence, were carried out by Library staff rather than the moving company.

KEYWORDS

photographs preservation, glass plates, moving collections, protective packaging

BACKGROUND

Political change, economic crisis

In mid 2008 the Government allocated funds to the National Library to redevelop its Wellington building. Later that year this money was halved due to a change of government and the effects of the global economic recession. There was also a new directive that there be enough storage space to accommodate all collections until 2030, increased controlled environment space for heritage collections and maintenance or replacement of aged infrastructure and plant. There was great uncertainty as to whether the Library would be successful in their bid for this funding. Eventually the Library's preferred option, to remain within the current building envelope and maximise storage by redesigning spaces and introducing high-density storage furniture, was accepted by the Government. In mid-2009 a formal agreement was signed and the National Library refurbishment was made public.

PLANNING AND SCOPING COLLECTION PROTECTION

Throughout those uncertain early stages, Library staff continued to plan the collection move on the assumption that protection and packing time would be limited if the refurbishment was approved. This was a most difficult period. The extent of the project, and indeed whether it would proceed, was unclear. Delays in critical decisions and planning adversely affected the flow of information within the organisation. Moreover restructuring was in full swing; key people had left and were yet to be replaced. It was not possible to inform the public of details regarding the building project or the availability of collections should the project go ahead. There was heated public debate about the role of the Library, partially fuelled by the lack of information available in the public arena.

During this time conservation staff discussed the protection requirements of the collections and the basic cost of these measures. Some fundamental priorities were agreed:

- Communication and definition of roles were crucial to the efficiency of the Pre-pack Projects and therefore to the safety of the heritage collections.

- The recently vacant role of Preservation Manager needed to be filled and comprehensive structures, such as risk assessment of the collections and a new disaster recovery plan, were urgently needed.
- Additional staff were essential for the completion of Pre-pack Projects and needed to be in place without delay.
- Any packaging proposals put forward by conservation staff should be comprehensive, withstand scrutiny and follow a logical structure. Protective packaging decisions were largely driven by the needs of the collections but were also in accordance with the changing budget and available resources; staffing levels, move schedules, storage space, and furniture type and availability all had to be considered.
- When permanent archival packaging was similar in price to temporary non-archival packaging, the archival packaging would be purchased.
- Budgets for the protective Pre-pack Projects needed to be in place as early as possible given the shipping times for essential archival supplies.

Over several months new appointments to key roles facilitated communication and decision making regarding the collection moves and protection. A final decision was made to retain the bulk of the collections within the National Library building during refurbishment. The extent and special needs of the collection meant the alternative had been to shift them by road to a distant city with enough suitable storage space. This change necessitated reconsideration of protection requirements for many collections. Move committees for each collection area were established and comprised of preservation management, conservators, curators, and representatives from logistics, moving and packaging companies. These meetings facilitated fortnightly information sharing, identification and mitigation of risks, collegial support, progress monitoring and resolution of issues.

A DISPROPORTIONATE SLICE OF THE PIE?

It was clear that due to the time constraints and the large numbers of items involved, collection scoping needed to be completed in the shortest time it took to achieve a reasonable level of information. It was also important to build a resource requirement picture across the collection. Critical questions were asked:

- What are the protection requirements of this collection/media?
- Are these proposed protection measures crucial to the collection's safety during move and refurbishment periods?

- Compared to other collection needs, how much resource do proposed protection measures for this collection require?
- If the proposal is resource-hungry, is there an alternative that would not compromise collection safety?

Photographic Archive collections, some of the biggest in the Alexander Turnbull Library, had the doubtful honour of needing intensive housing and protection. Early on, when roles were less defined, or perhaps less understood, and situational sands were shifting, it was important to counter the perception that these collections were overly resource-hungry. To ease this perception key management staff were progressively introduced to the principles and specifics of material sensitivities by conservation with support from curatorial staff. Scoping was also completed to help inform and finalise resource allocations.

A case in point was the illustration files from *The Evening Post* newspaper. This high-profile archive of photographic prints is heavily used by the public. Although re-housing was not a priority from a curatorial point of view, the collection raised significant preservation concerns. The prints came to the Library crammed into 2800 hanging files of the type used in office filing cabinets. Large prints and panoramas were being damaged whenever cabinet drawers were opened. The visual message to clients was unfortunate; there was certainly room for improvement.

The Evening Post prints were among the first collections to move offsite in order to be accessible to the public during the refurbishment period, and time was therefore limited. The prints needed to be shelved as their cabinets could not be accommodated in the offsite storage. After a mini survey, much discussion, tours of the collection and designing and testing various housing, a \$9000 archival rehousing option was proposed. This involved creating an oversized sequence with associated housing, then rehousing the bulk of the collection upright in folders that would slot inside a supporting box.

Creating the oversized sequence was relatively straightforward but it was difficult to gain signoff for the bulk re-housing, so a number of strategies were employed to further this project. Two other archival housing options were explored to underline how cost effective the proposed option was. The ideal option, to house all prints flat, in individual enclosures and within small boxes came in at \$250 000. Given the situation this would have taken up an excessive amount of the temporary storage space and an inordinate proportion of packing time. A similar medium level option, costing \$78 000, was not viable for similar reasons.

The breakthrough came when a modification to the proposed box allowed hanging files to be accommodated (see Figure 1). The hanging files could be boxed and moved to the offsite location, which was achievable within the move schedule and was duly signed off. The bulk rehousing, transferring the prints from hanging files to folders and placing the folders back into the boxes, could be done as a second stage. Agreement was later gained to carry out this work during the refurbishment period.



Figure 1: *Evening Post* archival box showing the overfull hanging files compared to the new archival four-flap folders.

BOXING PHOTOGRAPH ALBUMS

In general photograph albums are unique, unpublished items comprising distinctive photographic processes, image layouts and other information including captions, inscriptions and decoration. Furthermore, photograph albums are often made of unstable materials that become brittle and acidic with age. Many albums also have simple but vulnerable structures: adhesives fail, bindings disintegrate, staples rust, plastic gives off damaging substances. The photographs inside the albums are usually offered better protection than if they were loose sheets. Although the components used in the fabrication of the album may negatively affect the photographs, causing staining or fading. If the album is unboxed, photographs may also be exposed to light and dust as the album leaves distort over time.

Meetings to quantify the boxing of the Photographic Archive albums were held before reporting lines and staff roles were finalised. A number of changes occurred during this period due to the collections being retained within the Library building during the refurbishment. These included new staff joining the dialogue, and reassessments of resource allocations and album protection needs. Eventually 650 albums were approved for boxing, however the total number of unboxed albums was closer to 1900. This caused concern because information from a previous survey indicated that boxing all photograph albums was a priority. Due to the non-uniformity of the vertically shelved octavo and quarto albums, the shelving situation, particularly for unboxed albums, was problematic.

The survey also suggested that while some current box types, for example book shoes, were not ideal, they were a distinct improvement on no enclosure at all. It therefore seemed prudent to concentrate on boxing the most vulnerable unboxed albums. Once these were boxed, a final selection of items was made throughout the shelves so that boxed albums could provide support for adjacent unboxed ones. It was hoped that although not all the albums could be boxed, the alternation of boxed and unboxed items would significantly improve the overall shelving situation.

Initially conservators used shelf assessments and the photograph album survey to identify vulnerable albums. Less than half way through the album boxing process, the photograph conservators began moving the glass negative sequence, so the box-making team supervisor was trained to carry out shelf assessments. This was extremely successful as the particular person involved was able to strike the delicate balance between using their initiative and seeking help when necessary. It also meant that when other conservators were busy, the boxing supervisor was able to access photograph albums. As a result of this and her target-driven approach to the work, over 1000 photograph albums were boxed.

THE GLASS NEGATIVES – A SEISMIC SHIFT

The glass negative store in the basement of the Library building was situated beneath external stairs with a history of leaking. Extensive repair work had been carried out on the stairs and a slow-setting resin had been injected into the cracks in the concrete. This resin travelled by capillary action, and set after 48 hours sealing the cracks. A waterproof membrane, with a monitored drainage point, was also installed above the ceiling. However, potential damage from low-level seismic activity and the continued 'settling' of the building's concrete foundations caused continued concern.

Although the cabinets containing the glass negatives had provided safe storage for 20 years, given the earthquake potential in Wellington they were not structurally adequate by contemporary design standards. They were also 2 metres in height, making retrieval of the higher items more difficult and more risky than necessary. Additionally, the cabinets were not space efficient and the collection had outgrown the store.

Concerted effort by conservators and curators resulted in a drawn-out, but relatively straightforward, decision to move the glass negatives to new cabinets in another controlled environment within the building. This was the conservators' preferred option because moving 170 000 glass negatives offsite for the refurbishment period and then back into the refurbished building was considered more hazardous. It was also accepted that only staff with significant experience handling glass plates would be involved in moving the collection.

ESL Industries, a Wellington based company, won the contract to supply new cabinets for the glass negatives. Much time went into quantifying how many negatives were in each format and discussing, checking and rechecking cabinet design components. The resulting cabinets (1500mm (H) x 450mm (W) x 650mm (D)) are sturdy structures made from zinc protected panel steel with powder coating¹. The glass negatives stand upright on their longest edge, so drawers vary in height depending on the format they house. The base of each drawer is lined with inert foam and rigid metal dividers provide support. Ideally the long edge of the glass plates would be at right angles to the action of the drawer, however this was found to significantly compromise space efficiency. Smaller formats are therefore housed parallel to the direction the drawer opens and the *automatic soft closing* slides adequately compensate for this orientation as they ensure a slightly open drawer gently slides closed (see Figure 2).



Figure 2: New glass negative cabinets with open drawer. Metal dividers can be seen to the front and to the right of the upright negatives. The grey spacer cards are inserted where damaged or deteriorated glass negatives have been removed from the sequence.

Recommendations from a seismic engineer were also implemented. Seismic padding, extremely dense rubber-like padding, has been placed under the feet of each cabinet. The cabinets are cross-braced to each other and bolted to the concrete floors so they remain independent of the wall. It should also be noted that the new cabinets have a low centre of gravity, lockable drawers and are less likely to tip because two drawers cannot be simultaneously opened within the same cabinet.

The glass negative move created an opportunity to carry out a fundamental re-organisation of the sequence. This involved two weeks of four to six curatorial staff renumbering, rehousing and troubleshooting within the sequence. The preservation value of this work cannot be overstated; during the physical shift of the collections staff were able to concentrate exclusively on moving the items safely.

The move itself, carried out over three weeks, was trouble free. Two staff loaded drawers with glass negatives, while another two staff moved the trolley containing the loaded drawers into the new store and slotted the drawers into empty cabinet bodies. It was unsafe for staff to lift drawers full of larger formats, so these items were transferred into empty drawers that had already been slotted into cabinet bodies in the new store. Because the negatives travelled through an uncontrolled environment between stores, cardboard covers were placed over the drawers to prevent condensation forming on negative enclosures during the trip. The

thermal mass of the glass prevented any significant temperature change to the items during the five minutes they were outside the uncontrolled environments.

The glass negatives are now protected deeper within the building inside well designed and space efficient cabinets. Retrieval is easier, quicker and safer. Staff have moved 11.5 tonnes of glass negatives and contributed to a lasting improvement for these fragile and important items.

PACKING INNOVATIONS

Library staff who were freed from business as usual were required to sign up for new work areas including Conservation support and Box making. Conservators and curators organised and supervised these staff to achieve the majority of the Pre-pack Projects, providing the physical protection of the collections prior to the move. These preservation projects were a great success on a number of levels. Some redeployed staff were initially reluctant or apprehensive about changes to their work. However, with adequate supervision, and by ensuring people were matched to suitable tasks, the teams were quickly running to capacity. Redeployed staff gained firsthand knowledge of preservation work and were very happy and stimulated by the projects they were involved with.

The floating bracket mount

The *floating bracket mount* is an innovative packing out technique devised by Simon Jay, box making team member. Quick, cheap and simple to perform, the *floating bracket mount* holds a small item safely within a larger box. Two folded pieces of card exert gentle pressure on the item, holding it in place (see Figure 3). The floating bracket is especially useful when small books are vertically shelved directly beside larger books.



Figure 3: This album is shelved beside significantly larger albums and has been housed in a larger clamshell box to prevent pressure points forming between the albums. The floating bracket mount consists of folded card that exerts gentle pressure holding the item in place.

THE DAMAGED AND DETERIORATED (D&D) GLASS NEGATIVE INVENTORY

For a number of years damaged and deteriorated glass negatives were removed from the glass negative sequence and placed in several different locations. Two marker systems had been used in the main sequence as a visual reminder that negatives had been removed, however neither was complete. There was a lack of information regarding the current condition of many of the negatives and how many of them had been separated out. The reference numbers of many of the separated negatives were also unknown.

These vulnerable items were to be shifted to a new location within the Library building. Furthermore, the mass digitisation project Pictures Online, planned for the refurbishment period, involved digitising a selection of glass negative collections. It was important that repaired negatives could be scanned with the collections from

which they originated. The D&D items needed to be amalgamated, inventoried and protected so they could be moved and then accessed at a later stage.

Three people assessed and inventoried the separate caches of negatives. Several hundred stable negatives were returned to the main sequence while the D&D items were packed in numbered boxes. The separate lists were then amalgamated on a spreadsheet that included basic information such as item number and condition.

The numbered boxes containing the D&D negatives were fitted out depending on their requirements with either acid-free card, paper, tissue or foam (see Figure 4). Similar sized boxes were stacked up to four high and tied together in numerical order even though, due to the varying formats (lantern size through to 10x12"), some boxes were significantly larger than others. In this case the larger box was placed on the bottom of the stack then the smaller boxes were tied together and placed on top. A thin foam layer between the large box and the smaller ones acted as a cushioning, non-slip surface. This system was quick, compact and workable and the box stacks were stable. A further layer of foam was placed on the shelves to create friction, and restraining cords prevent slippage off shelves in the event of an earthquake (see Figure 5).



Figure 4: Packing consisting of foam blocks adhered to card provides protection for a severely delaminated and water-damaged glass negative. The support card is smaller than the box and has a rounded corner (see top right) to facilitate easy removal of the glass negative.



Figure 5: Boxes of damaged and deteriorated glass negatives after packing out and labelling. Boxes are tied in a stack and foam provides a non-slip surface within the box stacks and on the shelves.

A total of 280 boxes (1500 negatives) were packed and processed in this way. All packing, moving and securing of D&D items on shelves was carried out by supervised staff. This was crucial for their safety as no packing was placed between the broken pieces of negatives due to time and staffing constraints and the priorities of other collection areas.

All damaged and deteriorated glass negatives can now be located and retrieved as part of the conservation treatment support for Pictures Online. A comprehensive marker card system marks

the original location of the D&D items in the main glass negative sequence. These also act as spacers ensuring there is enough room to reinsert each glass plate once repair and digitisation is complete (see Figure 2).

OVERSIZED GLASS NEGATIVES, CASED ITEMS AND OPALTYPES

Three other projects of primary importance were the provision of custom made enclosures for uncommon and fragile photographic processes that had been stored in substandard conditions:

- Cased items had been housed in acid-free envelopes, stored on their long edge in poor quality boxes and outside a controlled environment.
- Opaltypes, housed within the main print sequence, were not identified by any special enclosures or labelling and were also stored outside a controlled environment.
- Oversized glass plates, although clean, interleaved, and stored in a controlled environment, were stacked up to 20 high inside archival boxes on the top of cabinets.

A simple four-flap enclosure design was adapted to contain these items, the outer was made from a smooth 275gsm archival card with two corrugated cards adhered smooth side out to provide extra rigidity and support. Each enclosure included a slot and tongue to keep the flaps closed. This basic but effective design provides protection during storage and ensures each package is easy and safe to handle.

Once inside individual four-flap enclosures, oversized items were stacked up to three high inside rigid archival boxes and placed inside general glass negative cabinets in a controlled environment. In the long-term, it is envisaged that these large items will stand upright on their longest edge supported by racks inside newly designed cabinets.

Other modifications to the four-flap enclosures were made for the cased items and opaltypes. The cased items will be digitised during the refurbishment period. This may increase public requests to view them but it is unclear how much supervision of the public will be possible in the refurbished building. The term 'cased item' is a slight misnomer; some items lack cases or the cases are severely compromised. The four-flaps alone were not adequate to ensure safe and easy handling of items with loose or missing components. Small cardboard trays and rigid folders were made to contain each damaged item and these were then enclosed in custom made four-flap folders. Enclosures were also labelled to reinforce safe handling and warn of specific vulnerabilities (see Figures 6-8). The cased items will be acclimatised into a controlled environment. Even though the cabinet design is not complete, it is likely the works will lie flat inside foam apertures fitted into shallow drawers.

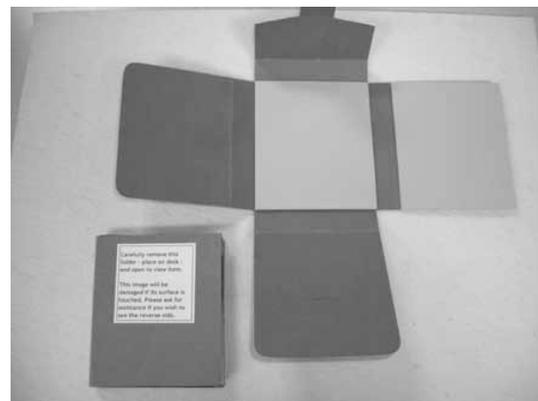
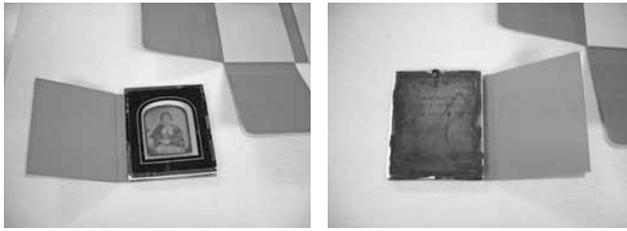


Figure 6: Rigid folder containing a damaged cased item (left) and four-flap enclosure (right). Handling instructions and specific vulnerabilities are adhered to the rigid folder.



Figures 7 & 8: The rigid folder can be closed up, turned over, and opened up again to view the verso.

There are only eight opatypes within the 10 000 boxes of the photographic print sequence. Protective rigid trays and four-flap enclosures with handling labels, similar to those made for cased items were provided for these large format items. The rehoused opatypes were moved by the conservators separately to the move of the remainder of the print sequence. They will be stored in a controlled environment in the refurbished building and their inclusion in the print sequence may be reviewed in the future.

LOOKING BACK, MOVING FORWARD

- The resources made available for the protection of the collections have vastly improved the curatorial and preservation situations of the heritage collections. Funding at this level is not available in the course of usual business.
- No project or course of action was considered finally agreed until it had been formally signed off; projects could change at any time for any number of reasons throughout the discussion period. Although potentially frustrating, changes were often beneficial rather than detrimental.
- In challenging situations, where conservation staff were being required to change or reduce protection levels, it was often possible to design more effective protection using fewer resources.
- The information gathered to ensure comprehensive protection across the collections has hugely increased what is known about the collections and this information is being used for preservation planning.
- Many staff, including management and redeployed staff, are now better informed about the role of conservation and their knowledge of the photograph collections has been hugely enhanced.
- The experience of the redeployed staff involved in Pre-pack Projects has gained them new skills and the resulting good will has been taken back to their original areas of work.
- The Library's relationships and agreements with suppliers and manufacturers of archival supplies have developed and improved as a direct result of the Pre-pack Projects.
- Last but not least, the majority of the heritage collections remain within the Library building for the duration of the refurbishment. The Collection Protection Framework, Disaster Recovery Plan, contractual obligations of the construction company and monitoring of collection storage spaces are crucial to the continued safety of these collections. But that's another paper.

ENDNOTES

¹ Further specifications from Max Beauchamp, ESL Industries Ltd: The side panels, top, back panel and drawer components of the ESL cabinets are constructed from 0.8mm zinc protected panel steel with a powder coat thickness of 0.15mm producing a total thickness of 0.95mm. Components such as the drawer front and the sides of the drawer are double folded to provide sections 2.0mm thick for added strength and to remove sharp edges.

The formed base cross member is made from 1.0mm zinc protected steel and the bottom of the back panels are double reinforced with an additional 1.0mm folded channel to strengthen the back of the cabinet and provide a strong section 2.15 mm thick to enable the cabinets to be moved around on a trolley.

The internal drawer dividers are made from 1.2mm thick powder coated aluminium with a total thickness of 1.35mm. The use of aluminium dramatically reduces the weight of each cabinet and the total floor loading on site.

The 3 stage suspension slides are constructed from a combination of 1.2mm and 1.4mm zinc protected steel with a load capacity of 45kg for each slide. Note that the cabinets containing whole plate or larger formats are fitted with four slides on each drawer to allow for the extra weight of the contents.

Overall cabinet strength is provided in the design configurations of the components in both vertical and horizontal directions and the important location and shear strength of the assembly rivets.

MATERIALS LIST

Baby Elephant Board®, corrugated card (2mm thickness acid-free, buffered, passes PAT)
Triptych, P O Box 16133, Wellington 6242, NZ.
Tel: +64 4 970-0228
www.triptychconservation.co.nz

Corrugated card Single Wall (3mm thickness) and Double Walled (6mm thickness) acid free, buffered, passes PAT
Port Nicholson Packaging, 29-33 Fitzherbert Street, Petone, Wellington. Tel: +64 4 568-5018
www.pnp.co.nz

Evasol® pH neutral adhesive, Ethyl Vinyl Acetate
Conservation Supplies, P O Box 646, Warkworth 0941, NZ. Tel: +64 9 425-7380, www.conservationssupplies.co.nz

Folio four-flap wallet folders (260 gsm acid-free, buffered card, passes PAT)
Port Nicholson Packaging, 29-33 Fitzherbert Street, Petone, Lower Hutt, NZ. Tel: +64 4 568-5018
www.pnp.co.nz

Gravel grey manilla (270 g/m²), acid-free card, passes PAT
Triptych, P O Box 16133, Wellington 6242, NZ.
Tel: +64 4 970-0228
www.triptychconservation.co.nz

Metal-edged boxes, acid-free, buffered, passes PAT (made to measure, ordered in bulk)
Port Nicholson Packaging, 29-33 Fitzherbert Street, Petone, Wellington. Tel: +64 4 568-5018
www.pnp.co.nz

Mylar® polyester film (50µ)
Conservation Supplies, P O Box 646, Warkworth 0941, NZ.
Tel: +64 9 425-7380,
www.conservationssupplies.co.nz

PE sheet (foam), 10mm and 50mm thickness
A&E Karsten, P O Box 28 325, Remuera, Auckland, NZ.
Tel: +64 9 570-4490
www.karsten.co.nz

Tissue (18 gsm), acid-free, buffered, passes PAT
Conservation Supplies, P O Box 646, Warkworth 0941, NZ. Tel: +64 9 425-7380, www.conservationssupplies.co.nz

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BIOGRAPHY

Ruth Oliver studied fine arts at Canterbury University, New Zealand, before gaining a Bachelor of Design (photography major) from Victoria University, New Zealand. She joined the National Library of New Zealand / Te Puna Mātauranga o Aotearoa as Photo-conservation Technician/Photographer in 1997. During 2002–2004 Ruth completed a Post-Graduate Certificate in Applied Science in Cultural Heritage Studies (photographs conservation specialisation) at the University of Canberra, Australia. She also completed the AICCM PHOTON Workshop Series. She currently works for the Alexander Turnbull Library as a photographs conservator.

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