

Salvaging Flood Damaged Records

Warwick Hirst

Procedures for salvaging water damaged archival material are considered in the light of the author's own experience as a sole archivist faced with a flooded records repository.

During the violent storms which drenched Sydney in early November 1984, the records repository of Lindeman (Holdings) Ltd., located at basement level, was flooded to a uniform depth of sixty centimetres. This disaster, the direct result of a nearby creek overflowing its banks, occurred at night and was not discovered until the following morning. As a consequence seventy shelf metres of paper records were completely submerged and another forty shelf metres were partially soaked. To compound this, a number of volumes, which were found beached in the compactus aisles, were generously coated with mud. Others had become swollen thereby causing additional damage to their bindings. The categories of records affected included sales reports, correspondence files, employee histories, accounting documents, wine making data, journals, advertising posters and wine labels. In form they consisted of leather and cloth bound volumes, stapled pamphlets, pages held together by metal clips inside manila plastic and cardboard folders, and loose sheets.

Faced with this situation it was clearly desirable to work to a plan in order to salvage the maximum number of records. This proved to be a matter of assessing the damage and then establishing priorities and procedures. In other words decisions had to be made as to which records to recover first and what methods to use.

Once the water was pumped out, the repository was inspected in order to discover the cause of the flooding. The company engineers determined that the water had entered through a gap in the supposedly water-tight door seal, something that was fortunately easily repaired. Equally fortunate was the fact that no structural damage had occurred to the building. Electric fans were then placed in the repository and kept going twenty four hours a day in order to maintain a steady flow of air, thus reducing the risk of mould.

Next came the daunting task of removing and drying the sodden records. This was too much for myself, the sole archivist, to perform with sufficient

speed. Nevertheless there was resistance within the company to diverting men from other flood affected areas to the archives. This problem was simply solved by hiring temporary staff from an employment agency. In the event they were responsible for rescuing material which otherwise might not have been recoverable in time.¹

As records were removed from the shelves care was taken to ensure they would be identifiable following drying and restoration. A list of all damaged material was compiled, together with details of the damage and replacement costs. This last information was required for the insurance claim.² Where identifying labels had been washed away, slips of paper containing shelf numbers and titles were placed with each series.

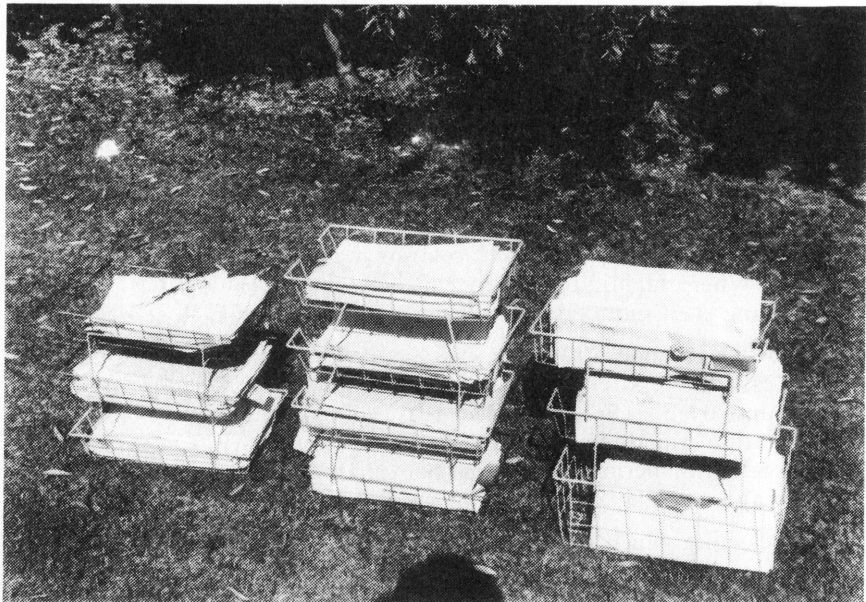
In order to concentrate our energies on salvaging the more valuable archives, others, after the necessary authorisations had been obtained, were destroyed. These included the following categories: where the information was duplicated elsewhere and the form was not important; where retention periods were about to expire; where the records were easily replaceable e.g. current posters and wine labels.

In selecting which records to salvage first, a number of criteria were taken into consideration, among which were intrinsic and informational value and degree of saturation. The form of the material was also important in this regard. For instance leather bindings tend to deteriorate and develop mould more rapidly than cloth. Again coated papers will irrevocably fuse together unless carefully separated while still wet. By contrast it was found that computer printouts dried well without sticking and these were given a lower priority.

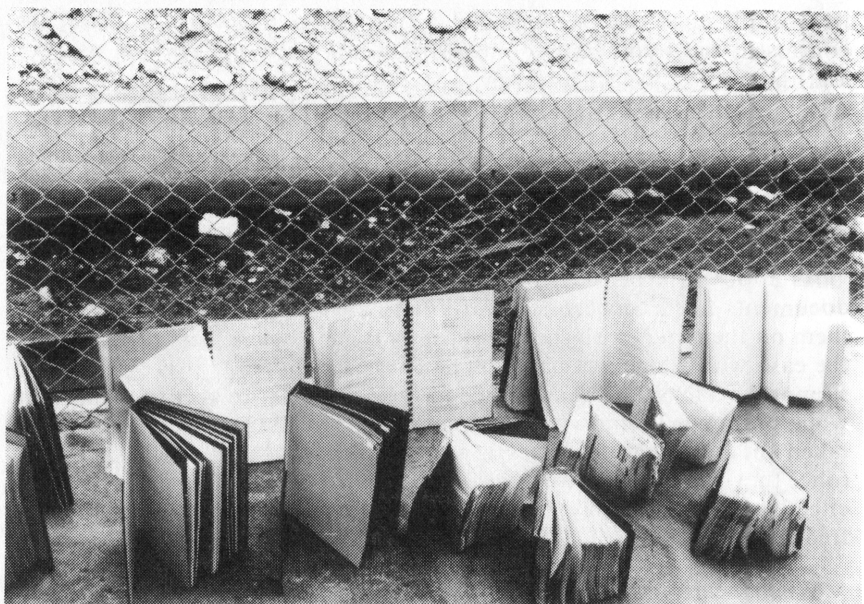
To promote the drying process the records were spread out in air conditioned areas using all available surfaces floors, window sills, benches and filing cabinets. Trestle tables were also erected and shelves were improvised by laying planks between tables and chairs. Fans were positioned to circulate the air and help reduce humidity.³

As about fifty per cent of the damaged material comprised financial documents fixed between stiff cardboard covers, it was possible to stand them on their ends with the pages gently fanned out — ‘gently’ because of the ease with which wet paper tears. In the case of soft covered volumes, supports made of cardboard or wood were necessary to keep them upright while draining. Bound volumes were treated in a similar way, care being taken not to damage the spines by opening them too far. Interleaving books (once they had drained) with clean, white paper towels also proved to be an effective drying method,⁴ particularly when the paper was changed frequently.

When nearly dry, volumes were placed under weights to correct any warping of the covers which may have occurred. Loose papers were placed in plastic “in” and “out” baskets which were stacked on frames on top of



Using plastic "in" and "out" baskets to dry loose papers.



Volumes of financial records drying in the open air.

each other to save space. Put upside down they became excellent racks for drying wine labels. Metal clips attaching correspondence files to their folders were removed to prevent rust stains and also to allow air to circulate freely along the inner margins. Where possible these files were stacked on their sides to encourage draining, although it was found that the thinner files dried satisfactorily simply by laying them on their backs and fanning the pages open.

Permanent materials which had received deposits of mud were partially cleaned, while still wet, by dabbing them softly with a sponge under running water. This operation was performed outside using a low pressure hose. Vigorous rubbing was avoided as this only tended to cause further damage by forcing dirt and grit deeper into covers and pages. Residual mud, and any mould which developed, were brushed off when dry. In general temporary records were merely dried, little attempt being made to clean them because of the time and labour involved. However, each one was dusted before being returned to its shelf.

Every day, when the weather was favourable, the records were taken outside in rotation where sunshine and wind hastened the drying process. This was not possible with sensitive documents such as employee histories and wage sheets which would have been exposed to the general view of visitors and staff.

Daily inspections revealed that a number of records were growing mould ranging in type from attractive, multi-coloured spots (rather like details from a pointillist painting) to a fine, white fur-like growth. To prevent this spreading further, fumigation was advised. There are several organisations in Sydney which provide such a service: the records are placed in vacuum tanks and sterilised with ethylene oxide which kills the mould bacteria. This process has the additional benefit of expelling much of the water from the records, thus assisting in drying them out.

Before the dried records were returned to the repository, the compactus shelves were thoroughly cleaned with soap and water and all rust spots were removed. Repairs had to be made to the sides of the compactus where they had warped under pressure from the swollen volumes. Also the compactus runners required greasing and it was thought wise to fumigate the repository itself.

The costs of restoring the archives and its holdings have not yet been finalised. However, it is estimated that the labour will cost \$5,600 and the materials \$1,200, a total of \$6,800.

The archives section has been operating normally since January 14, 1985. By that date, all operations, including drying, restoring and sterilising, had been completed and the records re-shelved. The compactus and repository had been cleaned and repaired.

The whole operation of repairing the flood damage to the records and

repository took two months. From this experience several worthwhile lessons were learned:

1. Rare and other permanent material should be located on high shelves well above any possible flood level. The lowest shelves should be reserved for replaceable and other less valuable records.

2. It was noticeable that tightly packed boxes of records suffered less water penetration than material which had been loosely shelved. While this might be inconvenient for regularly used material, it could save expensive restoration work in the event of flood (and also fire).

3. The repository should be subjected to regular service and maintenance checks aimed at preventing (and detecting) any possible disaster.

4. All salvage and drying operations need to be performed with speed balanced by care. To this end the cost of hiring additional labour is likely to be considerably less than the cost of later restoration work made necessary by delays in implementing initial drying procedures.

5. A comprehensive disaster plan should be prepared incorporating among its provisions the following: emergency measures for circumventing any impending disaster; procedures for salvage operations; priorities for the salvage of records in the collection; the location of suitable areas for the treatment of damaged records; names, addresses and telephone numbers of people and organisations able to provide relevant assistance; names, addresses and telephone numbers of suppliers. Once drawn up, the plan requires revision and updating to allow for changes and developments.

6. For the sole archivist, a sound knowledge of basic conservation techniques is essential. To be able to apply "first aid" promptly to damaged records may often be the means of saving them, or at least of reducing the damage. However the advice, if not the assistance, of conservation experts should be sought. This is particularly important with rare and unique material, or in the case of large quantities of records where drying by hand may not be practical or effective. Any restoration work will, of course, require the expertise of trained professionals.

FOOTNOTES:

1. In order to buy time to plan and co-ordinate the drying operation, water damaged materials can be stabilized by freezing and storing them at low temperatures (-20°F). This won't dry the records or kill the mould bacteria, but it will prevent any further mould growth. P. Waters, *Procedures for the Salvage of Water Damaged Library Materials*, Library of Congress, Washington, 1975, p.5.
2. Included in the insurance claim were the following costs: fumigation, hire of fans, repairs to repository and records, replacement of archives boxes and conservation supplies, temporary labour, and the archivist's wages while engaged in salvage work.
3. "To leave water soaked materials more than 48 hours in temperatures above 70°F and humidity above 70% will almost certainly result in heavy mould growth and lead to high restoration costs." P. Waters, *op. cit.*, p.2.
4. Waters recommends interleaving at intervals of 50 pages. He also suggests using interleaving sheets impregnated with thymol to inhibit mould growth. *Ibid*, pp. 18, 19.

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