

TECHNICAL NOTES

Recurator Process

The Queensland State Archives has recently been corresponding with the Yissum Research Development Company of the Hebrew University of Jerusalem to obtain information concerning the Recurator process. The samples which they have sent of restoration work are quite impressive. The price of the machine as advised on 15 June 1975 was \$13,000 (ex-factory, Jerusalem) and the delivery time six months.

The Recurator works by directing a flow of paper fibres to the holes or missing parts of the document. There is no overlapping of new and old paper and the new paper fills the holes in the document flush with the original surface. The damaged document is prepared in the usual manner (cleaning, aqueous deacidification, etc.) and placed on a silk screen. Water, paper fibre and other components are added and the machine is activated. Following the restoration process, a press extracts the excess water from the page which is then dried in the conventional manner. The process requires only five minutes for each cycle.

The Recurator is presently in operation at the Jewish National and University Library and one is now being built for the Cambridge Library. The Library of Congress uses a similar type of machine and is presently constructing a larger one. Stella Alkala, in an article entitled 'The Chemical Laboratory for Hygiene, Conservation and Restoration of Damaged Written Materials' in *The Restaurator*, vol. i, 1969-70, pp. 87-91, describes a similar process which is used in the National Library, Sofia.

Hand-made Bodleian Repairing Paper

Since about the middle of 1975 a new series of hand-made Bodleian papers for repair work has been available. Samples of these were subjected to accelerated ageing at a controlled temperature of 105°C for 576 hours. This period is considered equivalent to 200 years life under normal archive conditions. It was found that, compared with the original paper, the aged paper had

- 94% of the brightness (Elrepho ZC Filter)
- 95% of the burst strength (Mullen)
- 78% of the folding endurance (Schopper double fold)
- 68% of the tear strength (Elmendorf double tear)

The results show that the permanence of the new paper is even better than that which the Bodleian previously produced. Aluminium sulphate in paper, particularly when combined with a rosin size, has been found to be unsuitable. This series of paper has a modern neutral size resulting in a pH of 7.0 (surface) to 7.8 (hob extract).

As in the past, this Bodleian repairing paper is produced in Super Royal Size (510 x 710 mm) and two weights — 22 lb/ream (55 g/m²) and 32 lb/ream (80 g/m²). The stock is light toned in colour, but white Bodleian can be made specially.

Acidity in Paper

The Conservator at the Queensland State Archives recently had occasion to measure the pH of survey maps on Whatman hand-made paper (1860) and was surprised to find a pH level of around 4.0. Generally speaking the maps are in excellent condition despite the pH level and the relatively poor storage conditions in which they have been housed for many years by the Survey Office. There are also maps received from the Department of Harbours and Marine on Whatman hand-made paper (1901) which have a highly acid pH of around 4.2. These are also in excellent condition which speaks well for the general condition of the paper.

Psocids

A recent outbreak of psocids or booklice at the Herbarium at the Queensland Department of Primary Industries was treated by flash freezing at -10°C . This appears to have been completely successful.

Jim Bruce and Lee McGregor

Newspaper Deacidification and Repair

Although many methods are now available for the deacidification of paper, the original Barrow method and modifications of it are still the most widely used and, according to reports, the most satisfactory. H. J. Plenderleith in his booklet *Preservation of Documentary Materials in the Pacific Area*, notes that

The successful application of the deacidification of any paper, using any process, must be preceded by careful planning of a ritual to observe continuity, so that papers can pass through the chosen process with safety and economy as regards to cost and labour. Such a process, based upon the use of freshly prepared bicarbonates of calcium and/or magnesium has been established at Archivio di Stato, Rome, and this lay-out has been proved to satisfy requirements admirably.

With the co-operation of the N.S.W. Government Analyst Laboratory, where trial and initial solutions are prepared, the State Library of New South Wales carries out deacidification and repairs of newspapers using the following procedure.

- Step 1: (a) weigh 15 g of calcium carbonate or 1.5 g of magnesium carbonate per litre of required solution, and mix to required volume.
(b) bubble through CO_2 gas ($1\frac{1}{2}$ atmos. press.) until solution reaches the required strength.
(c) leave solution to settle.
(d) test analytically, using EDTA-solution. If deacidification solution has not reached the required concentration, bubble through more CO_2 and check again.
- Step 2: When the solution has reached the required concentration, decant the top layer into a sink.
- Step 3: Place all sheets which are to be deacidified onto fibre-glass netting larger than the pages. Check the pH level of some pages and record results.
- Step 4: Immerse pages on their individual nets into the deacidification

solution and leave for required period (20 to 60 minutes, depending on the type of paper, the original pH level, and so on).

- Step 5: Before removing pages from the solution, check pH again and record results.
- Step 6: Remove all pages carefully, for when wet they have less than 10% of their original strength. Leaving them on their netting, place the pages on racks to air dry.
- Step 7: When dry, check the pH again and record results.
- Step 8: Make up repair/lamination tissues by spraying Primol LC40 on Eltoline tissues; air dry; cut some sheets into strips for small repairs.
- Step 9: Repair the deacidified sheets with these tissues, using el-spatula or dry-mounting press.
- Step 10: Do not rebind newspaper volumes—wrap them in acid-free paper between acid-free boards laced with linen tape, and write title, dates and call number on the spine.

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