

THE CONSERVATION OF ARCHIVES IN AUSTRALIA

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THIS SURVEY was undertaken to provide some estimate of the existing strengths and weaknesses of archival conservation in Australia so that effective planning for the future can be undertaken. The survey was limited to the larger institutions containing government, academic, commercial and other archival collections. It included some of the larger manuscript libraries which were considered likely to hold substantial quantities of private archives. It did not include church archives or collections of historical societies. The aim was to provide a detailed assessment of the major repositories only, as it would appear that conservation facilities are almost non-existent in any but the larger organizations.

About 85% of organizations surveyed responded. Of the respondents 43% were government archives, 15% were business archives (mainly banks), 24% were academic institutions, and the remaining 18% were miscellaneous archival repositories and manuscript libraries. The total quantity of records involved in the survey exceeds 200,000 linear metres or 200 kilometres.¹

The questionnaire was divided into sections dealing with the following subject areas—present staff, future staff requirements, record storage conditions, restoration/repair facilities, and methods of restoration/repair.

Staff

Within the thirty-three organizations which took part in the survey, there are currently 23 people working full time and 6 part time on restoration and repair. Of these, 8 are engaged in work for the Dixon and Mitchell Libraries so that only a proportion of their time would be spent on archives. A further 4 full time and 2 part time workers are employed by the Australian War Memorial and would also spend only part of their time on archives. So the number of men and women actually working on the preservation and repair of archives is very small. This is particularly alarming when one realizes that these few people are responsible for all the work involved in conserving over 200 kilometres of records.

Of those presently engaged in conservation work, there is a very wide variety of training and experience. The most usual formal qualification is that of bookbinder. There are 4 qualified bookbinders and 1 apprentice employed. Other formal qualifications include a Certificate in Archive Restoration and Repair from the Camberwell School of Arts and Crafts in London, a National Diploma in Design from Shropshire County Record Office, U.K., training in Art Galleries, and photographic

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qualifications. At least 2 people have had a Churchill Fellowship which enabled them to receive several months of training in overseas conservation centres. However it would appear that most training in this work has been 'on the job'. The lack of formal training courses in conservation work in Australia has meant that individuals have had either to go overseas for training, or to rely on learning their skills through supervision and guidance from more experienced colleagues, perusal of current literature on techniques and materials, and the knowledge that years of practical experience can bring.

Salaries offered range from \$3,462 to \$12,249.² The wide range in salaries offered is partly a reflection of specialization of jobs within the general area of conservation with support staff, who undertake routine and less skilled work, being paid very low salaries. In general, the salaries are not high considering the skill and knowledge required. Most are certainly not high enough to attract those with a tertiary level education or with extensive practical training overseas.

Future Staff Requirements

The questions in this section were designed to ascertain the kinds of skills and knowledge likely to be required by employers, and to give some idea of the employment opportunities for conservators over the next ten years or so. It is always difficult to predict future developments and for this reason some of the organizations which participated in the survey preferred not to commit themselves in this section of the survey. Any figures gathered are therefore only very approximate. The economic climate over the next ten years is obviously going to be a major factor in the size of the labour market for conservators. In view of the substantial proportion of respondents who did not answer this section of the questionnaire, plus the difficulty of predicting the financial climate, the following statistics are of limited value.

Respondents were asked to estimate the total number of conservation staff in five years and again in ten years. The total for five years hence was 68 with a minimum of 100 in ten years time. It was expected that about half of these would be employed in government archives. Prospects for the employment of staff in commercial and academic archives seem decidedly bleak with projected totals of 3 and 5 respectively in five years. Respondents were also asked whether they planned to employ support staff to carry out simple routine work or whether the conservator would be expected to carry out all aspects of the work from the simplest to the most complex. 55% indicated that they would be employing support staff and 24% indicated that they would not. The remainder were unsure.

Possible types of training for conservators range from post-graduate courses at a University or College of Advanced Education (which would produce scientists specializing in conservation and restoration techniques and capable of carrying out laboratory testing of equipment and materials) to an apprenticeship type course at a Technical College (which would produce skilled craftsmen to carry out archival binding and restoration/repair work). Respondents were asked to indicate the likely employment prospects in their organization of graduates of both types of training.

The total for conservator/scientists in the next five years was 5 and for conservator/craftsmen 30. The projected total in ten years was 9 for conservator/scientists and 47 for conservator/craftsmen. It will be noted that there is an internal inconsistency here since these figures are substantially lower than the projected total for all conservation staff in five years (68) and ten years (100) already given. This may be due to some ambiguity in the wording of the questionnaire with some people interpreting questions 3(c) and 3(d) as the number of additional staff rather than the total staff employed.

30% of respondents indicated that conservators would be expected to undertake bookbinding and related tasks as part of their work. 21% indicated that bookbinding would not be part of the work. The remainder did not specify.

Surprisingly only 52% of respondents indicated that they could make substantial use of an organization established to advise on conservation and to undertake laboratory testing of materials and equipment. Presumably as conservation becomes an increasingly important part of archival work, such a service would be of more use.

Record Storing Conditions

Of the institutions surveyed almost all kept their records in concrete and/or brick buildings. A surprisingly large number of buildings, about 60%, were designed specifically for record storage. Less than 40% however are fully air-conditioned. About 35% are partly air-conditioned and the remainder have no air-conditioning. This means that a very substantial quantity of records are subject to harmful fluctuations in temperature and humidity. This is more serious in some climates than others. In Brisbane, for example, where temperatures frequently exceed 35°C, and 90% humidity is not uncommon, the lack of air-conditioning in storage areas is highly detrimental to records.

There is little attempt to monitor the PH level of the atmosphere by most repositories. Again this would be more serious in some areas than in others. For those archives which are sited in industrial areas or in inner city locations, atmospheric pollutants are likely to cause considerable damage over time to paper and other materials.

River flooding does not appear to be a problem for the Archives surveyed. However 6 institutions reported that records had suffered some water damage while in their custody. This was due to such things as roof leaks, burst pipes, ground seepage, etc. Most of the archives which reported such damage were government archives.

The vast majority of repositories do take some precautions against fire although their effectiveness appears to vary widely. Most institutions have opted for a combination of defences against fire. 60% use heat sensors, 67% use smoke detectors, 46% have sprinkler systems, 91% have hand held extinguishers and 82% have a direct line to a Fire Brigade station. A variety of other methods are also used. 3 government archives use CO₂ gas and 1 is using halogen gas.

A discussion of the pros and cons of various methods of fire prevention is beyond the scope of this report. What is apparent, however, is that there are several institutions whose fire precaution measures are inadequate by most reasonable standards. To rely completely on

hand-held extinguishers and fire hoses does not provide a sufficient protection against fire in a records storage area.

It is interesting to note that only 46% of institutions ban smoking entirely. 52% allow smoking in staff work areas, 12% allow it in reading rooms and 9% permit smoking in record storage areas.

The great majority of Archives surveyed use steel shelving although about 10% have some or all their records on wooden shelving. Most put volumes directly onto shelves although some indicated that where volumes are in poor condition they are first wrapped or placed in boxes. Documents generally are stored in boxes. Many Archives also indicated that documents are placed in folders before being put in boxes. Again this was more common where the documents are fragile. The major exception to this was the practice of one State Archives of wrapping all documents in paper and tying with tape instead of boxing.

Only a very small percentage, 12%, use PH neutral containers for all records although a further 9% do use such containers for particularly valuable items or for items in a bad state of repair. Almost 80% of respondents store most or all of their records in containers which are not PH neutral.

From answers given to questions on fumigation of archives, it would appear that this aspect of conservation generally does not receive much attention. Only a very small proportion of archives fumigate all records as they are received. Many archival records come from basements, attics, air raid shelters, old buildings, etc., where they are housed in damp, ill-ventilated conditions and are riddled with bookworm, booklice, silverfish, mould and other insect and bacteriological pests. Where such records are allowed into an Archives without treatment, they will not only continue to deteriorate but will infect 'clean' records already held. Although 60% do fog repositories (either on a regular or on an occasional basis), generally the fumigants used are not residual. Therefore fogging is only effective if no contaminated records are introduced subsequently.

Only one Archives uses the vacuum chamber method. Fume cupboards are used by 30% of Archives. Fumigants used include dichlorvos, thymol, ethylene oxide, methyl bromide, formaldehyde, malathion, topane and paradichlorbenzine. In some cases fumigants are selected to deal with an outbreak of a particular insect, in others fumigation is a general precaution.

The wide range of fumigants used raises some questions about the effectiveness of fumigation measures. The lack of a specialist knowledge of most archivists in this area presents a difficulty. There is a tendency to assume that any fumigant will kill all pests. In fact of course this is not so. Some fumigants are effective against some bacteria and insects and not against others. Some will kill live insects but not the larvae which may hatch out later. The concentration of fumigant used is also likely to effect the rate of kill. The effects of fumigants on the health of staff handling the records must also be considered. Such questions need to be thoroughly investigated by the archivist before he can be sure that effective measures for the control of insects and bacteria are being taken.

A further problem in this regard is the effect temperature and

humidity have on control of insects and moulds. 'Optimum conditions for checking the growth of fungus are a temperature of 20-24°C and relative humidity of 45-55.'³ Buildings without air-conditioning in some climates may in fact be providing ideal conditions for the spread of mould and the growth of insect populations.

Most of the Archives surveyed hold not only documents, files, registers and indexes of the usual type, but also records in many other forms. Repositories were not asked to specify quantities of records in these formats and so in some cases the quantities involved may be very small. 81% hold film, 97% hold photographs (prints and negatives), 78% hold glass negatives, 81% hold maps, 56% hold gramophone records, 75% hold tape recordings, and 37% hold computer tapes. A few also hold paintings and prints. These figures may be rather high as the line between 'archival' and 'non-archival' materials is sometimes rather hazy. The figures given may include some 'non-archival' material. However, it is clear that the large majority of Archives are now faced with coping with records in a variety of less traditional forms. It is also evident that many Archives make no special provision for these records. This is perhaps understandable since to create a suitable environment for such things as microforms, computer tapes and tape recordings usually involves considerable expenditure in installing temperature and humidity controls and in the purchase of special storage equipment.

For most Archives, the quantity of records in these forms is relatively small. However, the proportion of records on computer tape, microforms, etc. is obviously going to increase substantially in the future. It would be sensible therefore for archivists to devote some time and effort to planning for more suitable accommodation for these kinds of archives.

Restoration/Repair Facilities

Perhaps the most striking fact about the answers given to this section and the next (methods of restoration/repair) is that so many of the respondents simply wrote 'not applicable' for both sections. In other words they have literally no facilities whatever for restoration work. So the records held by these Archives remain in whatever condition they are received—nothing is done to repair items in poor condition or to prevent further deterioration.

Given that there are so few men and women engaged in conservation work it is not perhaps surprising that the majority of institutions surveyed have so few facilities for repair work. Obviously there is not much point in buying expensive equipment if you have no staff to make use of it. However, even in Archives which do employ some conservation staff, facilities generally are not good. In the questionnaire we listed some of the major items of equipment which a conservation section might be expected to have if it is to perform efficiently.⁴

Less than 50% of Archives surveyed have a separate room for repair work. Only about one third use laminating machines. Only 30% employ deacidification techniques. Almost all of these use aqueous methods although one Archives is using vapour phase deacidification. Only 12% have fume extractors. Given the many dangerous chemicals

conservators have to work with, some method of removing toxic fumes from the atmosphere is a necessary safety precaution.

37% have a book press, 16% have a blocking machine, and 53% have a guillotine. This lack of bookbinding and lettering equipment presumably indicates that most Archives either send records out to be rebound or they do not rebind volumes in a poor state of repair.

The overall impression gained in this section of the survey is that Archives generally are very poorly equipped in terms of restoration and repair facilities.

Methods of Restoration/Repair

About one third of institutions surveyed did not complete this section and presumably have virtually no regular programme of repair work. Of those who did complete this section, hand repair seemed to be favoured over lamination. Only 1 institution uses lamination for all work whereas 7 do all work by hand and a further 6 do over 50% of work by hand. This may be due to the high cost of lamination equipment but probably also reflects some reservations about lamination as a repair technique. There was a clear preference shown for hand repair where the document concerned is particularly old or valuable.

Only 12% of Archives reported that deacidification was normally carried out prior to repair. A further 15% indicated that deacidification would be carried out on selected items only. Regular measurement of PH levels both before and after repair was standard procedure in only about 25% of cases. There is obviously a very substantial proportion of repair work being carried out in which no attempt is made to measure acid levels or to neutralize acidity in paper.

Methods of cleaning vary widely and include washing, rubbing with art gum eraser, vacuuming, and bleaching with Chloramine T. There is also considerable variety in repair papers although Bodleian Repair Paper and Japanese tissue are the most widely used. However, other materials such as eltoline, archive text, permalife and nylon gossamer are also used. Carboxy methyl cellulose is the most common size used. For map mounting calico is used in most cases. A few Archives are evidently still mounting maps on silk in spite of its high acid content.

It is surprising to note that very few institutions are trying polyester encapsulation as a method of protecting paper in view of its increasing use in overseas conservation centres. Only 4 of the organizations surveyed are using this technique.

36% of institutions indicated that they are undertaking some copying so that valuable, fragile or heavily used originals may be withheld from use. However, in general the quantities copied amount to only a very small proportion of total holdings. Photocopying and micro filming are the most widely used copying methods. It is interesting to note here that heavy use of records for genealogical research has led to quite extensive copying programmes on selected series of records.

The impression gained from the answers given in this section of the survey is that techniques used vary from very basic to quite sophisticated. Most Archives attempt only register rebinding, map mounting and some cleaning of paper. In others a wide range of repair techniques including deacidification, lamination, hand repair, polyester

encapsulation, fumigation and cleaning using bleaches and solvents, are used. Presumably this depends very much on the skill and training of the staff and on the facilities and equipment available.

Conclusion

The overwhelming conclusion to be drawn from this survey is that Archival institutions in Australia devote a very small proportion of their available resources to the physical preservation of their records. The larger and better funded organizations are at least providing good storage conditions for most of their records. However, there still remains a very large quantity, perhaps as much as half of all archives in Australia, which are housed in conditions which could not be considered even adequate. Stored in areas without temperature and humidity controls, proper fire and flood prevention equipment, air purification plants and regular fumigation, the life span of these records is drastically shortened.

We are even more remiss in the provision of facilities for the restoration or repair of old or damaged records. Most Archives make no effort whatever to repair records beyond some basic binding work. Given the high proportion of records which are received in a damaged or deteriorated condition this is an omission with serious implications. Paper which is already weakened by mould, insect damage, fire or water damage, high acidity or the effects of over use is likely to continue to deteriorate rapidly, particularly where storage conditions are unfavourable. The majority of Archives have virtually no repair equipment beyond the most simple and basic. With a few exceptions, any repair work is undertaken by untrained personnel capable of carrying out only the simplest and most unsophisticated repair techniques. Even where trained staff are employed, the facilities and equipment provided are often so inadequate as to make it impossible for staff to work efficiently.

The lack of men and women trained and experienced in all aspects of conservation work has been a major stumbling block to the development of conservation services in Australian archives and libraries. Many of those people currently working as conservators have had little formal training. The fact that they have been able to make so substantial a contribution under very adverse circumstances is a tribute to their ingenuity and dedication to their work. Through a mixture of practical training (both overseas and in Australia), perusal of current literature on techniques and materials, and extensive trial and error, many have attained a very high degree of skill in their profession despite the difficulties under which they work.

The establishment of a Diploma Course in paper conservation and a Masters course in Conservation at the Canberra College of Advanced Education should mean that trained personnel will soon be available for employment in conservation work in archives and libraries. The survey shows clearly that there is a great need for a major expansion in this area. What is less clear however is whether archivists are going to take advantage of this pool of trained labour to develop comprehensive restoration and repair programmes. The impression received is that this is very much dependent on the economic climate over the next ten years or so. If money is scarce there will be little expansion in the conservation field in archives.

The majority of institutions surveyed indicated that they could make good use of an organization established to provide advice on conservation, to test materials used in repair work, and to conduct research into new methods and techniques. At present there is no organization in Australia which provides such a service. The Central Conservation Institute proposed by the Institute for the Conservation of Cultural Material might fill such a role. The archival profession should give serious consideration to this proposal and lend whatever support it can to attempts to establish such a centre. Alternatively, the staff organizing the courses at the Canberra College of Advanced Education might be willing to consider providing some such service to Australian libraries and archives.

It is stating the obvious to say that archivists now should be working towards the provision of better storage facilities for records, for the employment of trained conservators and adequate support staff, for better facilities and equipment and for the development of research into materials and techniques. The inadequacies of the present situation are glaringly obvious. Unless there is a major expansion in conservation programmes in Australian archives and libraries, the potential life span of the majority of our records will be drastically curtailed. We will be failing in our primary responsibility of preserving the records in our custody.

Tempting though it is to blame the paucity of conservation facilities in Australian libraries and archives on the high costs involved and the current economic climate, the truth is that the blame for this situation lies fairly and squarely with the archivist administrator. Despite all the difficulties over the past twenty years or so, money has been found for increases in staff in other areas, for new or extended buildings, and for new programmes of work in other archival and records management areas. When drawing up his or her priorities, the archivist almost always puts conservation near the bottom of the list. While paying lip service to the idea of better record storage areas, the employment of trained conservators, and the provision of facilities and equipment for restoration and repair of archives, the archivist faced with limited resources, opts for expansion and development in other areas in preference to conservation. The lack of development in conservation in Australia is a direct result of this philosophical conviction on the part of the archivist that the physical preservation of records is of secondary importance when compared with the arrangement and description of records, the provision of a reference service, retention scheduling and records management. Until the archivist comes to accept that the responsibility for the physical preservation of records is his first priority, the situation with regard to conservation is not likely to improve much.

NOTES AND REFERENCES

1. It is difficult to be exact about this. The total obtained by adding the figures given by the respondents is about 180,000. However, no estimates were given for the Public Record Office of Victoria and the Archives Authority of New South Wales, and these would certainly boost the total substantially.
2. These were the salaries at March 1977. They may have altered since.
3. Kathpalia, Y.P. *Conservation and Restoration of Archive Materials*. Paris, UNESCO, 1973.

4. Summary of the section on restoration/repair facilities showing the approximate percentage of Archives surveyed using each item listed.

<i>Equipment</i>	<i>% of Archives</i>
Lamination machine	30
PH measuring equipment	
Test strips	19
Pen	19
Meter	33
Light table	28
Sink	
Stainless Steel	49
Ceramic	3
Hot and cold water	52
Cold water only	—
Fume extractor	12
Heating apparatus	
Bunsen burner	3
Stove or hot plate	33
Deacidification plant	
Aqueous	27
Non-aqueous	3
Spray unit	6
CO ₂ gas and tank	18
Guillotine	53
Book press	37
Blocking machine, type and cabinet	16
Vacuum cleaner	42
Paper trimmer	36
Drum dryer	6
Roll dispensers for paper, leathers, etc.	12
Type of lighting	
Natural	42
Fluorescent	79
Incandescent	—
Locked storage cupboard for chemicals and poisons	36