PREVENTATIVE MEDICINE AND THE TREATMENT OF SOCIALLY DEPRIVED RECORDS

by CAROL RUSSELL

POLITICAL, economic and management decisions affecting the care of people and the care of records have marked similarities. The critique which has been developed about the health and ill-health institutions in our society almost exactly parallels the situation in the records conservation area.

Just as it has been realised that ill-health care is excessively costly and labour-intensive and that ill-health specialists do not have the time to do properly the job they purport to do—health care—so in the records area it is known that record maintenance and repair care is excessively costly and labour-intensive. Although archivists are making significant moves in the records-management area they do not have time to maintain and repair the records of the past, much less to cope with the conservation demands of the records being created today. So, just as in the health sector there are moves to improve the health of the population in order that we do not have to spend an even more disproportionate sum out of public and private purses in ill-health care, similarly archivists and records managers must effectively lobby so that the most effective and efficient sets of management decisions are made in order that records are created, used and stored in accordance with the principles of records conservation.

There are two major respects in which the analogy between the health and records models fall down. These are in the types of trained personnel available in each area and in the decision rules as to who or what gets care. There are plenty of ill-health workers and highly-trained specialists, and a relative dearth of health practitioners. Although in the areas of records management and archives there are a considerable number of 'healthy' record practitioners (managers, archivists) there is a dearth of ill-record specialists in the maintenance and conservation areas. Although there is now one Australian College of Advanced Education offering a course in conservation, the course specialises more in paper chemistry and art repair rather than in book and document repair, part of which can only be learnt in trade bookbinding. No specific comprehensive book and document repair course is offered in Australia.

In most Western societies, there is a tacit belief that all people should receive the best available health care. This ideal is not always achieved. For example, in Birmingham persons over fifty needing renal dialysis do not receive this treatment because of the dearth of machines. Other examples where cost factors intervene are numerous, the most glaring being the discrepancies between ability to pay for

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medical services and the quantity and quality of service being available for differing groups. But in the last analysis, the problem of good *health* rests, to a large extent with the individual consumer; whereas the problem of good record conservation rests with managers advised by records managers and archivists. So, records, inert objects unable to influence their destiny, are subject either to objective, rational decision rules consciously worked out and worked at or, in the absence of these, to a haphazard records management policy.

In the health sector, attempts are being made at rationalising services; in the records area a cost conscious, rational approach which is consistent with the best in archival policy and practice must be continuously strived for. As one writer on archives put it, 'Everything in (record) collections is deteriorating today, was deteriorating yesterday and will continue to deteriorate tomorrow, although we ought to retard the process!' We should be retarding the process of deterioration not only of existing records but also of those yet to be created, and doing it by applying the well-formulated set of materials-conservation principles in the areas of records creation, use, storage and maintenance. It is to this I will now turn.

The decisions about records conservation that managers must make are:

—What record system will be used?
—How long is it desired that each class of record created should last?
—From what materials should records be created, and how?
—To what standard should these materials conform?
—Under what standards should the records be used?
—How should the records be stored?
—What maintenance standards should be employed?

If all the above were decided and acted on in an optimal way then my last question would not need asking:

—What materials should be repaired if damaged, and how?

What record system should be used?

Forty years ago the asking of that question would have been a joke. There only was one system, that based on paper, ink, typewriters and filing systems such as the ubiquitous annual single number system. Twenty years ago even though the cybernetics industry was in its infancy it was still more cost-effective to build large buildings and create, use and store paper-based records using labour-intensive methods than to use non-paper systems. Since then we have witnessed a complete reversal where cybernetics have taken the lead. Paper is still with us, though futurologists are predicting that the paperless office will be with us in, say, a similar period. The cost of building repositories and offices will be reduced substantially because of the invention and acceptance of such systems as Plessy's updatable microfiche system 200 and, in the future, I.B.M.'s memory bubble.

How long is it desired that each class of record created should last?

We are not talking of record disposal as such. It is the conservation principle which is at issue here. Records required to be held for periods

of fifty years (long term), one hundred years (permanent) or one hundred and fifty years and more (archival) must be identified in order that they can be created with materials that have at least the appropriate specified minimum life. Archivists do not have to go far to hear stories of paper records only ten years old deteriorating so badly that their future use is already in jeopardy. The combination of poor paper, ink and storage conditions is usually the reason.

From what materials should records be created, and how?

Materials can be divided into five types.

(a) Paper and paper products
(b) Inks
(c) Electronic data processing
(d) Microforme
(e) Production and reproduction machines

(a) Paper and Paper Products

Nineteenth-century and earlier papers were made from cotton wastes. It is the nature of these materials that has given them good longevity even under what we know are bad storage conditions for paper products. We are often complacent that twentieth-century paper records will fare as well. But they will not. Modern papers and paper products are made from wood pulp and recycled paper products. The paper-making processes which are used for both efficiency and cost-effective reasons leave most papers in what can only be described from an archival point of view as a dangerous chemical state. Although the methods of producing archivally sound paper are known, as indeed are the processes of returning the state of paper into a condition where it is archivally 'safe', these processes are not used by the paper manufacturers unless requested. The reason is that the bulk of paper which is used need only have a life of say ten to thirty years and the extra costs involved are not worth it for users. They will not pay the higher price. The Products Manager of Australian Pulp and Paper Manufacturers told me that they had an archival grade paper in their range which was discontinued as recently as the middle of 1978 because of insufficient demand from customers. Archival grade paper was about $1,400 per tonne; good quality bond is about $800 to $900 per tonne, and of course run-of-the-mill paper is considerably cheaper. So, in order to create records on archival paper the cost would vary from about 50% to 100% more in paper cost. Hence the nexus between disposal scheduling, records creation and the choice of materials used.

(b) Inks

The materials and manufacturing processes used in the making of inks have also changed dramatically this century: witness the rise of ball point pens since the 1950s and the use of typewriters. Again archival grades of pens, inks and ribbons are more expensive than non-archival grades. There was a story in the press in April 1978 that Mr Whitlam's records produced on good quality bond paper on an I.B.M. golf ball typewriter with a carbon ribbon were fading. When I checked

this story and its subsequent rebuttal with I.B.M.'s office products division they informed me that their carbon ribbon is archival but an inferior grade made by another company was used on Mr Whitlam's typewriter. They also said, incidentally, that operator use can affect both document and machine longevity.

Ball point pen manufacturers said that they are not sure of the life of their inks, as the ballpoint has only been in use since the 1950s and they were unaware of any accelerated ageing tests such as the ones done on paper. They thought that the life ought to be longer than fountain pen ink—which is questionable, since it dissolves in solvent. They claim that the best quality ink they make is reproduction ink, its main feature being its high carbon content.

The importance of inks is that they are still the medium through which individuality is given to bureacratic documents through initials, signatures, comments and drafts. One archival conceptual query about the 'paperless office' concept, incidentally is how signatures are to be assigned and maginalia recorded. Like paper, inks will continue to be of importance in the production of hard copies, for computers (if they output) can output with paper and ink or onto microforme. Ink and paper still need to be seriously considered in the records creation use and storage areas.

(c) Electronic Data Processing

Two quick points may be of interest. First, it is from the cybernetics industry that I gained the notions of fifty years as long term and one hundred and fifty as archival. In the commerce world 'archival' is sometimes considered as twenty years. Everyone to whom I spoke in the computer and microforme industries were aware of archival significance and used as a bench mark the deliberations of the chief American archivist for their standards. On the other hand only one person in the paper and ink industries to whom I spoke—from 'APATA' (the paper technical association)—referred to the work of the American Bureau of Standards. The second point is that computer material is not designed to last. One major company replaces tapes and discs on about a ten-year time frame.

(d) Microforme

I will not comment here on either the types of microforme or on storage, as this is the subject of other speakers at this workshop; but I do wish to mention the archival significance of the Plessy System 200 updatable microfiche. The American National Standards Institute's standard PH 1.41 defines archival record film as 'a photographic film composed and treated so that under archival storage conditions it is suitable for the preservation of records having permanent value'. The Rasch accelerated ageing tests as used for paper are applied to the film which must have a safety film base, processed coating and image stability. After the stimulated ageing, tests are then made to compare various film properties of the 'aged' film with those of unexposed unaged film. The System 200 file film met the testing requirements within the prescribed limits. In addition, exposure to light (which, interestingly, is not a National archives and

record standard test) did not affect the permanence of the information of the existing images. This film is classified as archival if it is stored and used in accordance with the manufacturer's instructions.

(e) Production and Reproduction Machines

The *how* of records creation cannot be separated from the *what* on aspects of records production—for, since the development of the printing press, then copying presses and now the universal use of typewriters, duplicators, photocopying machines and the recent introduction of electronic word processors, very few records these days are solely created by hand. In answering the *how* of records creation, managers these days have to absorb a vast amount of product and technical information on word processing systems in order to make sure that the work gets done efficiently and, for those records it has been decided to keep, that the machines create them in an archival form, on archival quality materials. As a test example I checked out photocopiers. The two questions I asked representatives of this world-wide $US 10 billion a year industry, which in Australia is growing at the rate of 20% per annum, were: How long does a plain paper photocopy last?; and, What effect does photocopying have on the shelf life of the original? The Victorian Marketing Manager of the present world leaders in this industry told me in answer to my first question, 'We quote archival'. Yet the actual manufacturer of their paper suggested that the life of properly-stored bond photocopy paper which they produced for them was about thirty to fifty years—definitely not archival!

In answer to my query about the effect on the shelf life of the original, the manufacturer claimed that the effect would be no worse than leaving the original open on a desk in sunlight for a couple of hours—that is to say, that the effect is infinitesimal. No one across the whole of the industry is prepared to put an actual figure on this but my belief is that with an archivally important original in a deteriorated condition one should weigh the consequences carefully before copying. Electrostatic copies deteriorate in about ten years in storage.

The area of materials, production and reproduction machines is vast. We are a long way from seriously coming to terms with the issues here for proper managerial decision-making in the area of records conservation. This thought leads us to the next management area.

To what standards should these materials conform?

There are no Australian standards in this area. There are British and American standards, of which at least the microforme companies take serious cognisance. Should it be a function of the Australian Society of Archivists to emulate the American equivalent and press for standards right across the board to be enacted by an appropriate government agency?

Under what use standards should the records be used?

Langwell, in his seminal work *The Conservation of Books and Documents* written in 1956 stated that paper records were at risk from the following:

1. Slow oxidation by contact with the oxygen in the air.
2. Slow internal breakdown due to acids either introduced during manufacture or during use, from iron and copper coming into contact with the sulphur dioxide pollution in the air causing sulphuric acid build-up in the paper, which destroys it.
3. Breakdown due to ultra violet light and damage traceable to micro-organisms such as bacteria and moulds.

In the foreword to Langwell's book, Dr Fowler—the first keeper of English county public records—states that the chief enemies of records are 'fire, damp, dust, rioters and other vermin'. As he does not mention them, I presume he includes fungi, bacteria, insects and users as 'other vermin'. Some, if not all, of these terrors affect all chemically active materials used. Avoidance of the above list of terrors is what use, building and maintenance standards are created for. As a first stage, rules for the use of records should be designed in each record office. Practice is not uniform in records office and registries across the country. Is this another aspect of production of standards where the Australian Society of Archivists could be active?

One of the desirable but very rarely found practices in registries is the practice of repairing damaged files as the damage occurs. Even more desirable would be the education of employees to handle current records properly. This is particularly so with the long-term and permanent class of records.

How should records be stored?

The above list indicates those things from which paper records must be protected. Air conditioned buildings containing an alkaline wash to deacidify the air at a humidity range of 60% to70% and a temperature range of 10° to 20° with an absolutly minimum amount of utra-violet light, thoroughly cleaned so there is no dust damage and fumigated regularly to avoid insect damage, with records stored on steel shelving allowing good ventilation between records and in acid-free cardboard containers with separation of record grades by material and the permanence required, are the ideal minimum storage criteria.

How should records be maintained?

Records maintenance includes many of the above items. Freedom from air acid, dust, insects, bacterial and fungal disease are essential, which means good cleaning and ventilation. Regular inspection on a sampling basis of each category of stored material on a systematic basis needs to be carried out in accord with resource priorities. I was unable to find a guide to how frequently each record group should be checked in this way—another indication of the degree of difficulty the archivist faces in performing his conservation tasks. Damaged paper records ought to be sent for the type of repair appropriate to the standard of the record, remembering that mass processing techniques such as lamination are vastly cheaper than traditional hand repair of documents or the pulling down and repairing of books, processes which are both labour-intensive and time-consuming. Reproduction of E.D.P. and microforme file copy material should be

done on a programme in accordance with manufacturer's instructions if disposal schedules indicate this is warranted.

What materials should be repaired if damaged and how?

The principles at issue here are few. The criteria for permanence should have been solved at the disposal schedule phase. Leaving aside the knotty problems of potential historical utility, any records classified as permanent or archival ought be maintained. When they of course, accidentally, are damaged they must be repaired. In the real world that ideal is rarely met.

The paramount principle of archival restoration is diametrically different from both art and book repair. In the latter, to the naked trained eye the repair should ideally be invisible; in the former to the trained eye the repair should be blatantly visible. Documents have an evidential quality. Hence the restorer is directed by the archivist never to cut maps, trim away termite nibbles, burnt or frayed edges, or to write in obvious missing words or improve legibility. All repairers, however, whatever they are repairing ideally ought to add a document stating precisely what was done to the original and when.

The *how* or techniques of repair of artifacts have similarity. Here the principle is to render the original chemically safe from decay and destruction under optimal storage and use conditions by the application of appropriate technology and techniques. But the *how* of repair is to be another speaker's subject.

Conclusion

In an optimal situation we would know what records we want to preserve; we would create them from appropriate materials and using appropriate methods; we would use them with care and store them in the best possible environment protected from their natural and artificial hazards. If this had been either an economic or historical priority for the last century we would not need to train and employ restorers. Restorers are incorrectly called conservators—for you, your employers and managers should be the conservators.