Various Restoration Processes of Periodicals with Regard to Experiences of the Bibliothèque Nationale, Paris*

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THE subject committed to me concerns restoration processes of periodicals or serial publications.

By way of introduction I want to insist on the importance of preservation, restoration and salvation of library material in general, of periodicals in particular. As librarians we have the duty to give access to the holdings but we must also ensure the survival of the documents in order to hand them over to coming generations as a source of information and a witness of past generations. Salvation of national heritage should be the priority goal.

As we all know, one of the major preservation problems today, if not the most essential one, is the very condition of the paper of documents dating back to the 1860's, and even earlier, when use of mechanical wood pulp paper became general. Such paper has an inherent acidity which increases with time. Publishing of periodicals started long before the use of mechanical wood pulp; their number, however became far more important at the end of the 19th century and it has never decreased since then.

Except magazines and deluxe serials on coated paper that have bindings of high quality, all periodicals share a certain fragility due to *poor quality paper* (it is particularly striking in the case of newspapers), *lack of binding*, sometimes even of *covers*. In most cases, covers are fragile, of low quality and therefore easy to damage. The large size of newspapers is a

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prejudicial factor that makes their preservation and access precarious. So the very nature of a periodical explains why such library material very often needs restoration.

The first aspect of preservation is regular checking of the holdings:

1) proper checking of the physical condition of the periodicals (margins, pages, binding, and so on), estimation of wear due to handling and of increase in deterioration caused by the inherent acidity of wood pulp paper and by atmospheric pollution;
2) regular checking of atmospheric conditions (moisture, temperature, dryness, light, etc.) in the stacks where the holdings are kept;
3) dust removal; and
4) location of parasites and mould and other risks.

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As soon as any damage is noticed, repair of the materials should take place, i.e. *restoration*. When you find yourself face to face with such periodical materials, how should you approach the restoration problem?

To begin with you should divide the documents to restore into two categories:

— small and medium size material (up to 31 cm)
— large size material (over 31 cm).

All periodicals share a certain fragility due to *poor quality paper lack of binding*, sometimes even of *covers*.

Within category 1 you have journals, magazines, bulletins, yearbooks, etc., while category 2 is almost entirely newspapers: dailies and weeklies or others. When the sorting out of the documents has been accomplished, you should make an estimate of the damage suffered by each document. Restoration may be of *minor nature*, for example tears, light damage of bindings, awkward foldings, etc. I think particularly of damage due to frequent handling of the copies whether old or recent. However, decay of paper due to its acidity concerns most periodicals and *all* newspapers published after 1860. Such decay leads to *extensive* or *heavy restoration*.

Minor damage can be repaired quickly in a small restoration workshop located next to the stacks (such

as in the Periodicals Department at the Bibliothèque Nationale) or by means of one or several minimal binding repair units (as in the Library of Congress) which can provide repair of the following types of damage due to wear and tear: loose covers and hinges, ripped or loose spines, broken corners, light lacerations, awkward foldings, loose endleaves and shelfmarks, erratas or other pages for insertion, loose single sheets to be inserted into pockets (for instance geographical journals containing maps)... The repair unit may be a station located within the Central Restoration or Binding Office of the Library, or mobile work units for site working in the stacks. In most cases, such repair units cannot take care of large size documents which generally need heavy restoration.

The first aspect of preservation is regular checking of the holdings.

Heavy restoration means above all *deacidification* of the paper. As I have already mentioned, periodicals, and especially newspapers, are very often made of poor quality paper whose acidity content is particularly high. The paper will therefore turn yellow and brittle, even if handling was not frequent over the years. Finally, the paper will crumble when handled, so we face a real self-destruction of the material. *Deacidification* is urgently needed now to save the document. For the huge national libraries this means the setting up of a mass deacidification programme that provides for a deacidification unit within the library (ex. Bibliothèque Nationale, Centre de Sablé, or the National Library of Canada) or for the transfer of the documents to a general deacidification plant (as proposed by the Dutch corporation AKZO, the American companies LITHCO and the Union Carbide with the Weit' process).

***Minor damage* can be repaired quickly in a small restoration workshop located next to the stacks or by means of one or several minimal binding repair units.**

Several mass deacidification processes are available today. They do not all have the same effectiveness and may also bring forward some unwanted changes (for example possible interaction that the chemistry and/or the engineering of the process may have causing changes in the materials: paper, covers, bindings, inks, dyes, colorants, degree of photo-sensitivity of the treated paper, possible weakening of the paper, cosmetic aspect of the treated document...). It is therefore important to consider technical evaluation factors: effectiveness of the deacidification procedure (ability to the process to accomplish complete and permanent

neutralization of strong and weak acids in the paper, deposition of an adequate and uniform amount of alkaline reserve compound in the paper for a long-lasting deacidification effect, effectiveness of the process in treating different formats). Other evaluation factors are: unit treatment costs, document security, logistical considerations (that is delay and cost of moving thousands of items, materials handling requirements), long-term vendor performance (for instance a defaulting vendor that forces you to terminate a contract and to move on to another vendor), long-term contracting, observation of facility operation, liability... One of the major problems today is the fact that in nearly all cases, mass deacidification is conducted in a pilot — rather than full production — stage. But libraries are contracting for a full production capability, and not for a pilot project!

***Heavy restoration* means above all *deacidification* of the paper.**

I cannot go into details here but I think you already understand the difficulty and complexity of choosing a mass deacidification process. Many parametres must be considered when organizing and planning a mass deacidification programme. Some processes (i.e. LITHCO) claim to provide also with a certain strengthening of the paper during the deacidification operation. A British process of polymer grafting is also being developed. It is a mass conservation process rather than a mass deacidification process as it provides the brittle paper with an increase of strength.

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However, such complex processes are not always required in smaller libraries. At the British Library, a quick and easy method to stabilize acid paper was set up in 1983 by Dr. Richard D. Smith; it is a spray gun. The spray consist of methoxymagnesium methyl carbonate and methanol and freon or CFCS = chlorofluorocarbons. At the Bibliothèque Nationale, this method is regularly used in the Central Restoration Office for some types of deacidification, for example of coloured documents that are damaged when treated in a borax water solution, which is the traditional manual single-item deacidification.

In any case, each library has to decide on its deacidification programme and choose the process(es) suitable for its holdings. Considering

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Deacidification should generally be followed by a proper restoration of the document (particularly when the document has not been microfilmed previously). In many cases, and in particular in that of newspapers, restoration means laminating done by the central restoration office in the library or by a specialized workshop (newspapers). *Laminating* consists in covering each sheet *recto-verso* with size («Bifix») and a transparent material (a polyamid sheet called «Cerex») by means of a thermosizing machine named «Reliant». Such a machine requires a staff of six or nine full-time agents.

The laminated sheets may then be bound (journals, bulletins, etc.) in traditional or industrial binding, or kept in acid free cardboard boxes of the same size as the document they are intended for (ex. newspapers). The choice of conditioning should depend on quality but also on costs. One must also consider the fact that laminating by thermosizing increases the space needed for the holdings by 70 to 100%!

I now want to pass on the *restoration processes* used *in the Periodicals Department at the Bibliothèque Nationale:* principles, choices and priorities.

The major principle for restoration is that any restoration of library material should be reversible so the document could be brought back to its original condition prior to restoration. It is probably a general rule in most libraries, at least in national libraries being in charge of legal deposit of the national printed output and hence responsible for the preservation of national heritage. It is indeed a rule which should be practised whenever you restore library material: manuscripts, books, maps as well as periodicals.

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Choices and priorities depend, of course, on the condition of the holdings, the quantity of documents to repair, and on the frequency of their handling. Priority should be given to

periodicals in bad condition which are frequently consulted. But choices and priorities depend above all on costs.

In this connection I want to refer to the «Salvation Programme» elaborated by the Bibliothèque Nationale from 1978 to 1980 in order to make a statement of the requirements for the saving of the holdings. Since 1980, the French Government has given a yearly grant of 10 million francs in extra subsidies for this purpose. Within the Programme a certain number of estimates were made so as to be aware of the financial requirements of such a saving operation: deacidification, restoration, microfilming, microfiches, binding, etc. In newspaper holdings alone, it was estimated that some 40 million sheets should be treated (laminating and microfilming). A tremendous task and gigantic expenses to face...

Therefore we must make choices what is often very difficult and frustrating. As far as minor restorations are concerned, solutions are quite easy and not very expensive. But what is important is to act quickly so the damage does not grow worse needing larger and costly repairs.

In the Periodicals Department, restoration of minor nature will generally be made in the small restoration workshop located next to the stacks. Most of such damage is due to frequent handling of the documents: wear and tear, broken corners, loose sheets, awkward foldings, small lacerations, etc. When the entire binding is in bad condition, the periodical will be bound again. Some fifteen binders outside the Library work regularly on behalf of the Periodicals Department. They are in charge of the binding of current periodicals but some of them also rebind old periodicals and reference books from the reading room.

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For restoration of *minor nature* the workshop uses different materials and tools:

Lacerations:

— Document repair tape, an adhesive tape of neutral paper, reversible, transparent and pressure sensitive (made by Archival Aids, United Kingdom);
— Filmoplast P and P 90, an adhesive paper tape (made by Filmolux, Germany)

Any adhesive tape used for restoration should be made of presized neutral paper. Use of an unstable adhesive tape (such as certain «Scotch» tapes) is prohibited.

Light damaged spines:

— Filmoplast T, an adhesive linen tape (available in different colours), (made by Filmolux, Germany)

Light damaged bindings (worn covers or bindings):

— linen cloth in different colours
— acid free board
— Japanese papers
— Filmolux, a strong adhesive plastic film which provides for good protection against wear and tear (used for any type of reference material but not for preservation), (made by Filmolux, Germany)

Size:

— Simili V. T., a synthetic size used for bindings (cloth, cardboard...) (made in France)
— Gluk 2, a rubber cement which is soluble with a special Gluk solvent, a mineral oil distillation (made by Dalbe, France)
— paste

Dusty and dirty material:

— Removal of stains and tapes: powder rubber or white eraser (made by Archival Aids, UK)
— brushing of the documents
— removal of unstable tape (type «Scotch»): trichloro-ethylene under hood
— washing in clean water: the document is placed between strainers or immersed in a chlorinated water solution during 15 minutes; then neutralization with hyposulphite or immersion in a borax water solution. After washing processes (by immersion) the document is rinsed during two hours in soft water. When the document has been immersed into a chlorinated water solution, it is resized with tylose.
— in some cases, sponging with cotton moistured with chlorinated water may be the best cleaning process.

Tools:

— screw presses
— cutting presses
— electric cutter
— weights
— stapler (stainless steel thread of variable thickness)
— trimmers
— drying trays
— basins
— large tables (you need a good deal of space for many restoration operations, even of minor nature)
— different kinds of tools used in any bindery: bone folder, scissors, needles, safety utility knives, scapels, scapel blades, hammers...

The workshop should also have room enough for stocking of restoration materials.

The above enumeration does not pretend to be exhaustive. When facing some types of damage, especially damage resulting from disaster, you may have to find out new means of restoring. In fact, in case of disaster, heavy restoration will generally be needed to save the documents (for instance fire, flood, infestation with insects, etc.).

The Restoration Workshop in the Periodicals Department is also in charge of the binding of some 25 current daily or weekly newspapers (French or foreign). For that purpose we use a kind of industrial binding named *Aclé binding* which consists of stitched «booklets» each one made of several issues held together by means of steel clips; these are fastened to the binding itself with thin steel wires. The sides of the binding are made of acid fress cardboard covered with acid free paper. The spine is strengthened with unbleached linen. Such a system allows us to save money (about FF 175 VAT per binding) and time (in one and a half hour one binder can fit a binding containing two months issues of a daily European newspaper). It offers another advantage: the possibility of binding without having available all numbers of the period considered; in case of microfilming, it is possible to open the volume completely (the paperstrip with which each issue is provided during the fitting makes it possible to widen the inner margin). The *Aclé binding* is also useful for binding of restored material (for example newspapers laminated by thermosizing). So to speaking it does not act as a real restoration process but certainly as a preservation process!

Heavy restoration

Now I shall give a short presentation of our Restoration Centre for Periodicals, especially newsprint, in Provins (a 100 kilometres East of Paris) named Centre André François-Poncet.

The setting up to the Centre in Provins and of the Centre for Book Restoration in Sablé-sur-Sarthe (300 kilometres West of Paris) was a direct result of the «Salvation Programme» which I mentioned earlier. The Centre in Provins was opened in 1981. It has in charge two objectives of the «Salvation Programme»: restoration and microfilming of large sizes documents (newsprint). The restoration workshop is meant to do mass restoration, especially of daily newspapers whose condition is so bad that they must be restored prior to microfilming.

Mass restoration in Provins consists in treating (laminating) each sheet by thermosizing as I already mentioned. Before laminating, each sheet undergoes manual deacidifica-

tion in a borax water solution; when decay is particularly severe, the sheet is re-formed, then sized with «Bifix» and covered one side (or both sides) with «Cerex», a strong polyamid material. Finally, it goes through a thermosizing machine («Reliant») and a rolling mill. At present, the Centre in Provins is capable to treat 70 000 sheets per year, which is a very small amount compared with the needs of the library. And as you will understand, it is a mass restoration process but not at all a mass deacidification process...

Considering restoration of *heavily damaged bindings* the solution will generally be rebinding of the documents as far as periodicals are concerned.

The Centre also houses an important microfilm workshop used by ACRPP (Association for Conservation and Photographic Reproduction of the Press) which is the most important microfilm supplier of the Bibliothèque Nationale. The ACRPP is located in Marne-la-Vallée in the eastern suburbs of Paris. Holdings of old newspapers are microfilmed in Provins but also 25 local current newspapers with multi-editions. The Centre has in charge the preparing of about 130 daily editions for microfilming.

The stacks in Provins have been set up for storage of original newspaper holdings and of microfilm masters or negatives (the stacks for microfilm storage are provided with air condition to obtain a room temperature of 13°C and a relative humidity of 40%).

Finally, the Centre houses a disinfection unit (with ethyle oxide) for holdings from the Bibliothèque Nationale or from some other libraries or private collections. The Centre has a staff of 29 agents, the Director being a librarian.

To come back to the mass deacidification problem, the Bibliothèque Nationale has no process available for large size material at the moment. As to small size documents, a mass deacidification unit has been operating in the Restoration Centre in Sablé since 1988. It is a system based on the Wei T'o process developed in Chicago by Dr. Richard D. Smith and operating at the National Library of Canada in Ottawa since 1981. The pilot plant for mass deacidification was set up in Sablé to test the pratical application of the French Methoxy Magnesium Methyl Carbonate process and to gain experience for the design of a large-scale plant. The process was developed in cooperation with the French Research Centre for Preservation of Graphic Documents (Centre de Recherches sur la Conservation des Documents Graphiques) in Paris. The French operation does not differ very much from the original Wei T'o process. The solution is, however,

slightly different in its composition. The MMMC solution is mixed in the plant with the carrier agent Frigen R12 in an approximate ratio 1:5. Quite a lot of problems have raised from the release of solvent residues from the treated books. Further development is still needed, particularly in the areas of drying and solvent recovery.

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Restoration of heavy damage of small and medium size documents is carried out by the Central Restoration Office in Paris. The deacidification process will here be immersion of the documents into a borax water solution or spraying of the documents with methoxy magnesium methyl carbonate and methanol and freon or CFCS (which is also available from Wei T'o Associates), especially when ink or colours cannot suffer to be immersed in a water solution. So to say the Central Workshop is in charge of all tricky restoration work.

Considering restoration of *heavily damaged bindings* the solution will generally be rebinding of the documents as far as periodicals are concerned. If, for once, it is an old leather or vellum binding that is damaged, it will, of course, be restored but periodicals are mostly bound in worthless cloth or half-cloth bindings or industrial bindings.

Large size bindings (ex. newspapers) are not rebound for two reasons:

1) the binding prevents from making a microfilm of high quality;
2) large size bindings are very expensive except the Aclé binding which is only used for current newspapers and some laminated newspapers.

Damaged or debound bindings (newspapers are debound prior to microfilming) are wrapped in acid free brown paper when back from microfilming, and then sent out to the Centre in Provins for storage.

I now come to another important point that is closely related to restoration and preservation: *Saving of the holdings through a large and well elaborated microfilm programme.* Choices should be determined according to two types od reflection:

— selection resulting from intellectual reasons;
— selection due to practical and urgent needs.

The intellectual selection should consider which categories of periodicals be of particular interest to the users of the library and hence im-

prove preservation and acess by microfilming of the holdings. Such a selection is often difficult to make, particularly in old large-scale libraries (i.e. national libraries, university libraries, etc.). A specialized library may decide to microfilm all its holdings of periodicals concerning one or some particular subject fields.

A chronological selection may also be relevant. Some historical periods may be of special interest: for example periodicals published during World Wars I and II are printed on very poor paper, sometimes typewritten and duplicated. They are of great historical interest and therefore often consulted. Such publications should be included in the microfilm programme of the library.

A specialized library may decide to microfilm all its holdings of periodicals concerning one or some particular subject fields.

However, in many cases, the microfilm programme will depend on pratical and urgent needs:

1) the physical condition of the holdings. When deterioration is badly advanced, the documents should be microfilmed prior to restoration for a microfilm will always turn out much better when made from non restored material;
2) some categories of periodicals, in particular newsprint, need to be mibrofilmed: poor paper, severe wear due to frequent handling over the years, poor print, colour print, variable formats, etc. It can be difficult to decide on the titles to microfilm so much more as funding generally does not correspond with needs;
3) lack of space in the stacks: when holdings have been microfilmed, you may keep them in remote stacks far from the library as the microfilm supersedes the hard copy for acess.

As you may know, a new big library will be built in Paris during the next five years. Its name is Bibliothèque de France. It is meant to supersede the actual Bibliothèque Nationale as far as printed matter (books) and periodicals are concerned. The specialized departments of the library (such as manuscripts, engravings, maps, musical matter) will remain in the present building (rue de Richelieu). The J. Doucet Collection of Art and Archaeology is meant to move into the space left by the Department of Printed Books.

With regard to the setting up of the future library, an inquiry on the physical condition of the collections in the Bibliothèque Nationale was made some months ago so as to get precise estimates of needs of restoration, deacidification, binding and

microfilming. The result of the inquiry some determine the preservation policy of the Bibliothèque Nationale until the opening of the Bibliothèque de France in April 1995, and even further on.

What do we understand by permanent paper? It is paper made from acid free mechanical or chemo-thermo-mechanical pulp with no more than 10% wood fibres, containing an alkaline reserve and a certain amount of oxidizable matter (i.e. lignin buffer).

Facing the enormous amount of documents to save, choices and priorities depend both on cost and quality of the various restoration and deacidification processes available today. Considering periodicals we will certainly try to carry out a very large microfilm programme while waiting for the best mass deacidification and paper strengthening process. In fact, restoration may not be necessary in most cases when the document has been microfilmed. A deacidification process combined with paper strengthening might be a fully acceptable solution, particularly if the best storage and housing conditions have been planned. Such conditions should of course also be available for storage of microfilm masters. Documents as well as masters could be housed in remote stacks but not within the same area on account of safety.

I shall now come to the last point of my paper which is of great concern to libraries: *permanent paper.*

What do we understand by permanent paper? It is paper made from acid free mechanical or chemo-thermo-mechanical pulp with no more than 10% wood fibres, containing an alkaline reserve and a certain amount of oxidizable matter (i.e. lignin buffer). The pH-value of permanent paper should range round 7.0. But what does *permanence* mean here? The definition of ISO (International Standard Organisation) and ANSI (American National Standard Institute) goes back to William Barrow's distinction between permanence and durability (Barrow was an American researcher who did the pioneering work on the rapid rate of book and paper deteoration as early as in the 1930's). I quote:

> «Permanence is the ability of a paper to last at least several hundred years without significant deterioration under normal use and storage conditions in libraries and archives».

At present, paper manufacturers in many countries worldwide produce permanent paper but only on a small scale. For libraries and archives, materials printed on permanent paper would probably mean the

end of decay due to acidic paper. But all paper produced need not to be permanent. And some categories of library materials, such as newsprint, will certainly not be printed on permanent paper that is a high quality paper and therefore more expensive. We must face the fact that newspapers will continue to be published on poor paper so mass deacidification of current issues will be necessary in future to preserve the holdings against selfdestruction. At the IFLA General Conference held in Stockholm last year, a visit to the Swedish Pulp and Paper Institute has been organized. Pulp and paper undergo here all kinds of tests whether acidic or permanent: minimum strength of the paper (tear resistance test), content of substances to prevent acid attack measured by the alkaline reserve; content of easily oxidized material; maximum and minimum pH-value of a water extract prepared from the paper, etc. Around hundred tests are available to check the quality of pulp and paper.

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An international standard for permanent paper is on its way, containing requirements to strength, minimum alkaline reserve, maximum content of oxidizable material (lignin) and maximum-minimum pH-value (7.0 to 10.5). Since 1987, it is being elaborated by the ISO committee TC 46, Subcommittee 10 «Physical keeping of documents» and TC 6, SC 2 «Testing methods and quality specifications for paper, board and pulp». There has been close contacts to the US Group revising the American National Standard from 1984 «Permanent paper for printed library materials» (ANSI Z39.48-1984).

We must face the fact that newspapers will continue to be published on poor paper so mass deacidification of current issues will be necessary in future to preserve the holdings against selfdestruction.

At the end of 1988, the American Senate adopted a «Joint Resolution» to establish a national policy that books and other publications of enduring value be published on acid free paper. For the first time, a nationwide policy was set up in this field. In 1990, it was expected that 48% of the printed output of books of enduring value in the United States be on permanent paper. Many other countries produce permanent paper according to national standards such as the United Kingdom, the Netherlands, France, Norway, Sweden and Finland where, on behalf of the Finnish National Archives, a law was adopted in 1988. It stipulates that

permanent paper and cardboard be used for any government or local administrative publication to be preserved. Moreover, anybody (manufacturer, importer, user or purveyor) can get paper samples tested by the National Centre for Technical Research in order to know about their preservation qualities. The National Archives are then informed about the results of the test as they publish a yearly list of materials meeting criteria for permanence.

To stimulate supply over the next years it seems necessary to give rise to demand. To this end, it is essential that Government authorities be involved with preservation as well as the library community istelf. Environmnetal protection may also play a role: paper manufacturing in neutral surroundigns. Publishers' demand for permanent paper should be stimulated. In France, according to the conclusions made in a booklet published in 1989 by Bernard Pras and Luc Marmonier, entitled «Paper for Eternity», the Government authorities' initiatives should focus on three points:

— promote several classes of permanence, which is the only reasonable solution for paper manufacturers and publishers; classes of permanence should fit to the types of books or publications they are intended for;
— be aware of the balance of the sales area and the coherence of operations undertaken in the past, especially in considseration of the stimulus given to reprocessed paper; but permanent paper and reprocessed paper are complementary as they are not used for the same purposes;
— be aware of the competitivity of the French firms and associate them with operations being carried out.

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What future for permanent paper? Abroad, provision seems already to have been made for it. But in France, it will depend on partners' united action, on professionals' dynamism and on the dragging of the demand on behalf of Government authorities. The stake is doublebound: international competitivity and preservation of national heritage.

To conclude, I should say that in consideration of the large-scale and very high cost of preservation programmes including restoration and preservation microfilming, it is our duty to promote awareness of preservation problems within the library community. But growing public awareness is also needed.

During the IFLA Conference in Stockholm, the Section on Conserva-

tion formulated its Medium Term Plan for 1992-1997. Some of the most important objectives are: promoting of awareness of preservation problems among librarians of all types as well as non-professional staff working in libraries; encouraging national and international programmes of cooperation in preservation and conservation; promoting the production and uise of permanent paper. During the same period, the Section aims to promote a regular exchange of information os preservation problems and needs as well as the education and training needs relating to preservation and conservation among library staff of all levels.

It is our duty to promote awareness of preservation problems within the library community. But growing public awareness is also needed.

I think the last point is of great importance. Over the last years, teaching in most library schools has included information on preservation and restoration. However, a good deal has still to be done in that field to train future library staff in tackling preservation problems. Librarians should know how to manage preservation planning and how to develop effective cooperation between libraries for, today, we know very well that a single library cannot master the problem of decaying holdings. A coordination of preservation programmes is necessary.

In the October 1990 issue of the *Newsletter* from the *Commission on Preservation and Access*, Washington, some samples of ideas concerning preservation education activities were suggested:

— Preservation must become a state of mind, a way of treating collections so they will survive to serve their intended purposes. Our greatest challenge, in practical terms, is to define preservation in clear and commonly agreed-upon language...
— All library schools will need to have preservation component in the curriculum but it may vary depending upon the emphasis... Library schools should think of imaginative continuing education courses, short courses, and work-study opportunities in addition to established courses.

Librarians should know how to manage preservation planning and how to develop effective cooperation between libraries for, today, we know very well that a single library cannot master the problem of decaying holdings.

I hope, indeed, my paper will make you understand how basical it

is to be aware of preservation problems and to know how to solve them at the best. Without proper preservation, access to the holdings is not possible and so the reader cannot obtain the information he needs and to which he has a right for his research work. We must therefore continue to develop our knowledge of preservation techniques and improve them through new technological developments.

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