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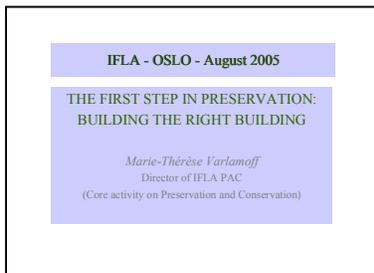
105 SI - Preservation & Conservation, Asia & Oceania & PAC & Library Buildings

Housing for eternity - sustainable solutions and mistakes to avoid. The role of library buildings in preservation

The first step in preservation : building the right building

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Among the essential missions of libraries two are complementary : preservation and access. They are often presented as being contradictory, which is, to my mind, a nonsense. Preserving for the sake of preserving is useless and giving access lavishly to all documents without taking into account preservation measures will, sooner or later, lead towards making the documentary heritage inaccessible for future generations. Having said that, what is preservation, where does it start? For decades librarians have tended to mix up preservation with conservation and all efforts have concentrated on the curative treatment of single documents. When you have thousands or hundreds of thousands, not to say millions of items, such an attitude is useless. Progressively it has become obvious that conservation had to be part of a wider concept : preservation or preservation. Preservation covers a wide range of practices and management procedures which I am not going to enumerate and detail here. My purpose today is to talk about the first step in preservation : building the right building.

Just as human beings start aiming towards the grave the day they are born, the same is true for library documents which, sooner or later, become out of use and inaccessible. The task of librarians and conservationists is to try and delay the time it takes for collections to reach this stage.

Threats [1]

- ❑ **Internal**
 - ✓ acidic paper
 - ✓ acetate films, etc...
- ❑ **External**
 - ✓ armed conflicts :
 - wars
 - riots
 - ✓ natural disasters:
 - fire
 - flood
 - earthquakes, etc

Threats [2]

- ✓ environment
 - climate (temperature, humidity)
 - pollution
 - insects, mould
 - light
- ✓ human-made disaster
 - readers
 - arson
 - theft
 - vandalism

Multiple threats menace our heritage. Threats may come from the inside and be part of the document itself (acidic paper, for instance, that becomes brittle) or they may have external origins such as fire, water or poor environmental conditions facilitating the growth of mould or the invasion of insects.

Too much light, heat, humidity or dryness are as many factors which accelerate the physical decay of the collections. Yet for too many librarians, readers still represent a major risk. All these threats make of long-term preservation a necessity. There is, thence, an obligation to strengthen efforts towards taking preventive measures in order to safeguard the documentary heritage for our grand children: the library building represents the first step to consider on the scale of preservation measures.

Planning a library means taking into account:

- ❑ Preservation issues
- ❑ Accessibility
- ❑ Operability
- ❑ Architecture

If historically a library was a place where books or manuscripts were kept (“Thékos” means warehouse or storage area in Greek) nowadays a library is more than a depository. It is also a place where you can sit and read books or even access on-line the information they contain. In the case of a new building or of the rehabilitation of an old building it might also serve as a showcase for politicians or decision makers. Hence the necessity to combine:

- ✓ preservation issues
- ✓ accessibility
- ✓ operability
- ✓ architecture

1. DIFFERENT LIBRARIES, DIFFERENT MISSIONS

Different missions call for different buildings. According to the mission of a specific type of library, problems are slightly different in terms of preservation and will influence both the program planning and the architectural choice.

Different categories of libraries [1]

- ❑ **National Libraries: preservation issues**
 - ✓ safeguard of national documentary heritage
 - ✓ back-up collection
 - ✓ national preservation office
- ❑ **Public Libraries: potential problems**
 - ✓ widely accessible
 - ✓ ancient collections of local or historical interest
 - ✓ organising exhibitions
 - ✓ location in polluted areas?

A national library should privilege preservation issues because it must safeguard the national documentary heritage. Most national libraries need to conserve a back-up collection and also serve as a national depository. They may also serve as a national preservation office, which implies that safety measures and preservation issues stand as a high priority when planning the building.

Public libraries are meant to be more open and widely accessible to readers and the public at large while some of them, which conserve ancient collections of local and historical interest, still have a conservatory. They often organize exhibitions, and all library professionals are conscious of how much damage documents can endure when not properly exhibited. Many, if not most public libraries, are located right in the center of the city where the air is particularly polluted, which will require greater attention as far as environmental control is concerned.

Different categories of libraries (2)

- University Libraries: specific problems
 - ✓ periodicals
 - ✓ photocopy
 - ✓ untidiness of users
 - ✓ location of the library

University libraries present other problems. They often preserve important collections of periodicals which are heavily used and tend to decay faster than books. The extensive use of photocopying machines represents a real danger for the collections and the untidiness of many students is, likewise, harmful. Under such circumstances, preservation issues, above all when an ancient collection exists, are posing more of a challenge. Additional risks, due to the infrastructure of the building itself or to the environment have to be minimized as much as possible by an intelligent architectural design.

Adam Wysocki

“... We now recognise that conservation is of fundamental importance for virtually all library and information services”

Vienna, 1986

All different types of libraries are therefore concerned by preservation issues. This was clearly stated by Adam Wysocki in Vienna when the IFLA PAC Core Programme was established: “Until recently many have believed that conservation of library materials was of concern primarily to national and research libraries. We now recognize that conservation is of fundamental importance for virtually all library and information services.”

2. THREATS & RISKS ASSESSMENT

Herman Liebaers

“L'essentiel est le programme: Planning is the most important thing”

Rome, 1973

In September 1973, the President of IFLA, Herman Liebaers, declared upon opening the Colloquium of National Library Buildings in Rome : "L'architecte est un mal redoutable qu'il faut vaincre à tout prix. Refusez son monument et imposez-lui votre instrument. En d'autres mots : l'essentiel est le programme.-*the architect represents a formidable nuisance to be mastered at all costs. Reject his monument and impose your own will. In other words, the essential lies in the programme*". Some twenty years later, Gérald Grunberg drove the point home : "S'il est indispensable que le bibliothécaire respecte l'architecte, l'inverse doit être vrai. Cela dépendra largement du programme dont disposera l'architecte.-*If the librarian must respect the architect, the architect must respect the librarian. This will mostly depend on the programme delivered to the architect.*"

Danièle Robert

Sans programme pas de bibliothèque,
pas de programme sans bibliothécaire

No library without a programme,
no programme without librarian

These two quotations prove that a library is not a plain or ordinary building. It should not be considered as a mere structure made of stone, concrete or glass nor as a work of art. The content of such a building is more important than the building itself and the missions of the institution have a prominent role, which caused Danièle Robert to declare : "Sans programme pas de bibliothèque, pas de programme sans bibliothécaire.-*No library without a programme, no programme without a librarian*".

Risk assessment is one of the first prerequisite when it comes to choosing the location of the future library. Since many libraries are built in city centers we must identify all potential external environmental threats :

Risk assessment
External environmental threats [1]

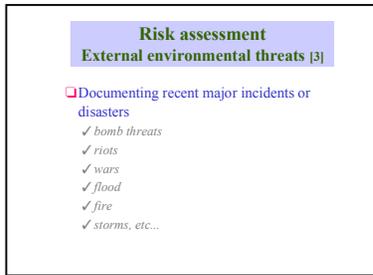
- Location
 - ✓ industrial area
 - ✓ rural area
 - ✓ city centre
- Major industrial or natural hazards in proximity
 - ✓ airport
 - ✓ railroad
 - ✓ river
 - ✓ industrial hazards, factories

- ✓ Is the location residential, industrial, rural, near a shopping center ?
- ✓ Are there any major industrial or natural hazards close by (airport, railroad, river, ocean, lake, woods)?

Risk assessment
External environmental threats [2]

- Surroundings
 - ✓ secure
 - ✓ subject to vandalism
- Pollution
 - ✓ dust
 - ✓ gaseous pollutants
 - ✓ chemicals
 - ✓ traffic

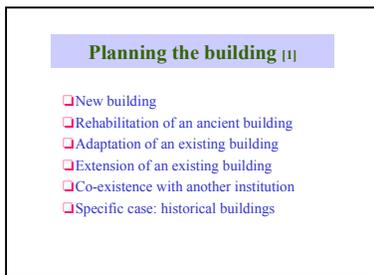
- ✓ Are the surroundings secure or subject to vandalism?
- ✓ Is pollution (dust, gaseous pollutants, chemicals) from factories, traffic, or the environment a problem?



- ✓ Have any major incidents or disasters occurred in the past years in the vicinity (bomb threats and bombing, riots, wars, natural disasters – flood, fire, earthquake, tsunami, storms) ?

Unfortunately, for various reasons – either political, economical, financial or others – it is not always possible to choose the best location and the choice comes from a compromise. There are numerous examples : the Bibliothèque nationale de France, in Paris on the left bank of the River Seine which was offered the land for free by the Township of Paris, the National Library of Portugal, located ten minutes away from the airport , with planes taking off or landing all day long above the roofs of the library, the British Library in London and the Koninklijke Bibliotheek in The Hague which both stand near a major train station or even the National Library of Guatemala located near the bus terminal which makes the collections dark from soot all year around. Sometimes the building is located in the line of fire from opposing military groups. This was the case in Croatia with the National Archives which suffered a great deal from being in the line of fire between the two fighting parties.

3. PLANNING THE RIGHT BUILDING



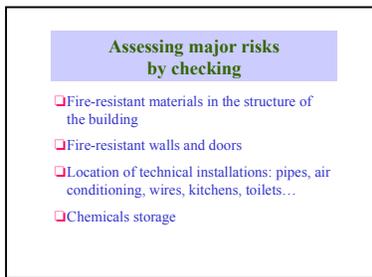
From a preservation point of view, if the location of the library remains important, still more important is the building itself. The main question is : do we have to plan a new building or do we have to adapt an existing building to the needs of a library, or else, do we have to share the building with another institution?

To install a library in a building which had been primarily built for another purpose is somewhat of a challenge and a more difficult task than planning a new building. Most of the time, it is more expensive and the result is less successful. One thing is sure : adapting an old building into an operational library or extending the existing spaces means many preservation problems. The situation is even worse when the building is a historical building : the lack of space, the impossibility or the difficulty of properly allotting the space into the different functions: storage, access, physical and bibliographical treatments, inappropriate materials or an improper or hostile environment on the premises, all this makes the transformation very difficult and unsatisfying.

The situation is different when it comes to planning a new building. But still it is essential to keep in mind that preservation seldom goes along with fashion. Window panes are not the best kind of walls for a library, at least in the storage areas. We should never agree to sacrifice preservation needs to the taste of the moment. The Bibliothèque nationale de France is a good example of what should be avoided, at least for a depository which requires darkness, constant temperature and relative humidity ; although some improvements (wooden shutters, plaster panels...) have been added by the architect to his first project, the situation remains far from being satisfactory and the results are much too dependent on the external climatic variations.

The librarian in charge of a project should know what he does not want and make it clear to the architect. Moreover, in countries experiencing severe climatic conditions (tropical or continental) it is wise to investigate which local and traditional materials are generally used because they have long proved to be better adapted to the local climate and

environment. Likewise traditional techniques, such as a double roof for better natural ventilation, should be more widely used in tropical countries.



Besides these general principles it is essential that the main risks – such as fire and flooding – be assessed and that we check :

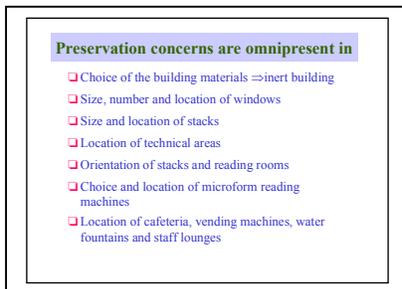
- ✓ what materials are used in the structure of the building;
- ✓ whether the external and internal materials of the building are fire-resistant ;
- ✓ whether there are fire-resistant walls and doors separating the various parts of the building (stacks, reading room and staff areas) ; I do not have to remind you of recent fires which destroyed entire collections, in Lyon or Weimar for instance.

We should also check :

- ✓ whether collections are stored at a safe distance from plumbing, electrical and mechanical installations – water pipes, radiators, air conditioning, kitchens, laboratories – in order to avoid leaks or flooding;
- ✓ that flammable materials (like chemicals in laboratories) are stored away from the storage areas.

In the case of a new building, planning is essential and the more precise the planning, the more satisfying the results will be. The dialogue between the architect and the librarian should be direct and clearly list all the details of the library missions and functions.

Preservation issues are all the more important since they are not limited only in the building and equipment of preservation premises and laboratories. Preservation concerns are omnipresent in the library and must be taken into consideration in fields as diverse as :



- ✓ choice of building materials, to ensure the most inert building possible ;
- ✓ size and location of the stacks ;
- ✓ location of technical areas (toilets, photocopying areas, workshops, electric appliances, cables and wires...) ; if cables are located around the room, it will only make the installation of the different working stations more difficult.
- ✓ orientation of the stacks and reading rooms ;
- ✓ choice and location of microform reading-machines ;
- ✓ size, number and location of windows ;
- ✓ location of the vending machines, cafeteria, water fountains and staff lounge ;

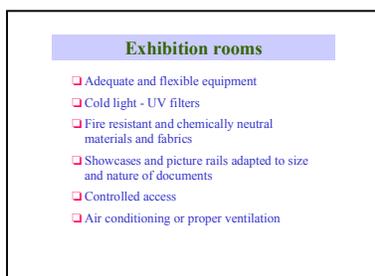


- ✓ air-conditioning or natural ventilation: it is estimated that between 18 and 25 m³ air per hour per person are necessary and that the total volume should be replaced regularly every hour or every two hours ;
- ✓ choice of heating system (central heating, electric convectors, radiators, radiant floors or ceilings, blowing systems...);
- ✓ HVAC (combined heating, ventilating and air conditioning system)
- ✓ security control ;
- ✓ fire and flood detectors ;
- ✓ fire extinguishers (CO₂, sprinklers, etc....) ;
- ✓ furniture and equipment ;
- ✓ light – what kind of light (natural or electric), what intensity in which area ? (From 300 Lux tolerated in the reading rooms down to 150 Lux in the stacks and 50 Lux on fragile documents when exhibited), how to protect from the sun light : blind, shades, shutters,

It is also essential to establish well in advance what the circuit of books and documents inside the library will be in order to reduce distances between one function to another. The alleys should be large enough to allow the trolleys to circulate easily . Trolleys, shelves and desks either in the stacks, reading rooms or offices, should be adapted and equipped according to the different size and nature of documents that are treated conserved and used (precious manuscripts, books, periodicals, newspapers, drawings, maps, records, audio-visual materials, etc).

Floors like the duck boards which were so frequently used during the XIXth century before the installation of electricity and when light came from the roof, should be completely abandoned because they are dangerous in case of fire and they facilitate the propagation of dust from one floor to another; their uneven ground is a source of vibrations for documents when carried in trolleys.

4. EXHIBITION ROOMS



Particular attention should be given to exhibition areas. Documents are at high risk when exhibited : contrary to paintings, library documents are not made for exposure: when they are not displayed correctly, or when the intensity of the light they receive is higher than usual, they suffer. Moreover the public is a source of increased heat and humidity, the materials and paints used in the exhibition room and show cases may be chemical danger factors. Last but not least, the risk of arson, theft or vandalism is not to be neglected. It is therefore important that these exhibition rooms benefit from :

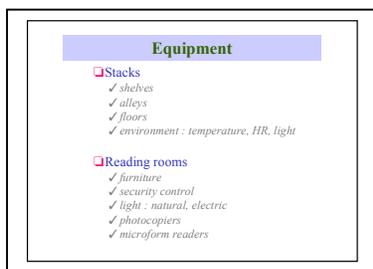
- ✓ an adequate and flexible equipment ;
- ✓ cold lights and UV filters. The intensity level of sustainable light which can be tolerated varies according to the materials exhibited. An oil painting is less fragile than a pastel, for example, and tolerates more light. For very fragile paper documents, a maximum of 50 Lux is recommended.
- ✓ fire-resistant and chemically neutral materials and fabrics ;
- ✓ show cases and picture rails adapted to the various shapes and sizes of the documents. It is recommended not to exhibit documents of different nature in the same showcase and thence to privilege showcases of small or average sizes because, as a result, the internal temperature and relative humidity are easier to control ;

- ✓ controlled access. Entrances and exits should be guarded during opening hours (which means that if there is not enough staff to guard both the entrance and exit, the entrance should be built accordingly to facilitate the entry and exit of visitors at the same point) . Alarms should be put on windows, doors and in the showcases or on the walls each time valuable documents require special protection ;
- ✓ air conditioning or proper ventilation, especially when there are many visitors.

Another very important point is to plan a storage area close to the exhibition room. This storage area must be protected like the exhibition room: a strong room is highly recommended. This area should also be equipped to store the cases and wrappings of the items on loan, and a space should be available to prepare the documents for the exhibition.

5. ADEQUATE EQUIPMENT

The equipment is the final touch and its conception is sometimes the responsibility of the architect only. I used to work at the Museum of Saint-Germain-en-Laye. The architect had designed the file cabinets from an aesthetic point of view so that the files stood vertically instead of horizontally and could not be punctured with a rod. In the reading room he had chosen beautiful and very trendy chairs that were fixed to the ground. It was not possible for readers to bring their chairs close together. But what was even more embarrassing was that the architect, who was a very thin man, had made the mistake of using himself as a model. Consequently, the chairs were nailed to the floor very close to the table. Unlike the architect, the Director of the Museum was rather stout and had a very hard time squeezing himself between the chair and the table.



Before selecting the adequate equipment for the stacks (fixed and traditional shelves, compact - manual or electric - rotating shelving...) it is necessary to make sure that they have been tested by library professionals and are not dangerous for the documents (we have all heard stories of electric compacti smashing books or rotating shelves tearing the newspapers they were supposed to store safely). Shelves made of metal are now preferable to wooden shelves because they are chemically neutral and do not foster insects. On the other hand, wood has been proven to absorb climatic changes more efficiently.

We all know from experience that shelves must not be too high and the lower shelf should be twelve or fifteen centimeters off the floor. To avoid too much dust from depositing on the upper shelf, protecting it with a fixed cover is recommended. Shelving should never be installed flush against an outer wall, because of the risk of humidity. It is essential to install a reasonable number of small shelves within the stacks for staff to work comfortably and safely deposit items while returning or sorting out documents. Between shelves each row should be lit individually and the light switched off when the staff leaves. This can be operated automatically. As a rule the general lighting system should only be working in the main aisles. Of course it is important that the stacks be separated from the reading rooms and from staff offices, both for security and environmental reasons since the temperature is not the same in these different areas.

The equipment in the reading rooms must obey the security rules which help preserve the collections. The staff desk should be located in a position conducive to the supervision of library patrons entering and exiting the room. If the room is lit by natural light, the windows should be preferably on the North side in the northern hemisphere and *vice versa* in the southern one. Otherwise, they should imperatively be equipped with UV filters and inner blinds. If oriented southward they should be occulted by outside shutters or awnings and protected from theft by railings or alarms, especially windows located on the first floor.

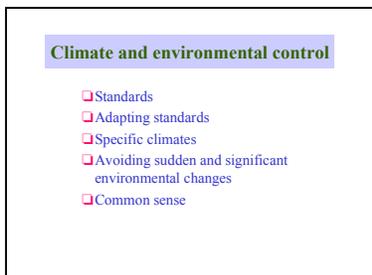
It is important to try and separate electrical devices such as photocopiers or microform reading machines from the reading room, both for the comfort of readers and the protection of documents, all these devices being noisy and

tending to increase the ambient temperature. The tables or desks need be large enough to allow several items to be consulted comfortably at a time. Individual lights are more a matter of comfort than a preservation measure.

It is of the utmost importance to avoid plumbing and pipes in or above the stacks and, as a general rule in any place where documents are being stored, even for a short time. Of course sprinklers may be installed as a response system in case of fire, but in such a case, it is recommendable to install a dry tube system like the one in Die Deutsche Bibliothek at Frankfurt, where there are two alarms : the first one, activated by smoke detectors, causes water to replace air in the pipes and the second, set up by heat, opens the sprinkler heads and allows water to extinguish the fire. Librarians usually consider water as their #1 enemy, which is partly true when you think that whatever the disaster, fire or flooding, water is always present. Although librarians know how to treat documents ruined by water, there is not much they can do when a fire breaks out and completely destroys the documents.

As I have said before it is important to separate as much as possible the different areas in which protective measures and climatic conditions are different. Also because of the risk of contamination or invasion of insects or mould, places to store, prepare or consume food, laboratories and storage areas for chemicals or dangerous items should be build well separated from stacks and reading or exhibition rooms.

6. CLIMATE AND ENVIRONMENTAL CONTROL



Recommended standards for preserving documents of all sorts are now well known. Everyone here knows the miracle figures of 18-20°C and 50%/60% HR for books and periodicals (Against 5°C and 35% HR for color print photographs and 21°C and 70% HR for vinyl disks).

The reality is that, in most cases, it is difficult to maintain a stable level of temperature or relative humidity, even with air conditioning. Specific climatic and economical conditions play an important role which must not be underestimated.

In tropical countries for instance where the temperature seldom goes down 22°C or 23°C and where the humidity stays above 70%, where there are frequent power failures and entire weeks of extremely bad weather – I am thinking of the hurricane season in the Caribbean – how can you expect to maintain such a degree of temperature and HR ? In such cases the best solution is to find ways of designing the building so that it can maintain a rather stable temperature and humidity level, even if these are higher than recommended by standards. Documents will be better preserved if they are not subject to sudden changes.

In these cases where it is difficult (because the maintenance is uneasy) or too costly to envisage the installation of air conditioning, efforts should be made to apply ancestral and local techniques or use materials that have long proved to be efficient in making the building inert. Both the architect and the librarian should show common sense and try not to follow the trends. Glass walls or non existing roofs are certainly not recommended in regions undergoing extremely hot and humid or cold and dry climates. The construction of underground stacks is not acceptable when the library is located near a river, unless a protective water-resistant wall is poured.

As a rule, what is good for the preservation of documentary heritage (security controls, low temperatures, dark), is not comfortable to the user and *vice versa*, everything the reader enjoys (free access, photocopy, bright lights) is harmful for documents.

I do not have time here to describe the different kind of lights and their advantages or disadvantages. I simply want to point out how important it is, from a preservation point of view to reduce light as much as possible. Of course, there is a conflict of interests between the comfort of readers and the preservation of documents and you are all certainly aware that when a document is exposed to light, it suffers, and that duration of exposure must be cumulated , so that it is not only the intensity of the light but also the length of the exposure that must be taken into

account. For this specific reason, the problem of light must be discussed in detail between the librarian , the architect and illumination specialists.

7. SPECIFIC PRESERVATION PREMISES



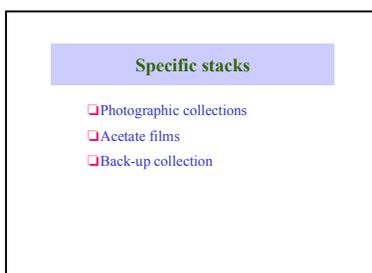
All through this presentation I have talked about the library building in general, and I think it is now time to approach a more specific topic : preservation premises. By preservation premises I mean the various premises such as reformatting areas (photocopy, microfilming or digitization), conservation laboratories,



maintenance rooms for small repairs, binding section, deacidification plant, disinfection unit, mass treatment areas (with splitting or leafcasting machines), a documentation unit with preservation literature, and a training center...When designing the conservation lab it is important to separate humid areas with water sinks from other dry or dusting areas for instance.

In view of implementing a disaster plan, spaces should be kept free on each level to store emergency kits (with gloves, pails, sponges, brooms, torch lights, etc.) to respond to minor incidents.

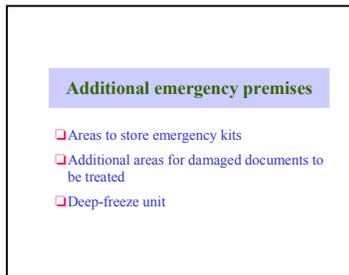
Upon entering the library each document normally receives an initial treatment (plastic cover, binding, label or bar code), sometimes the information is recorded in an electronic database. All those different operations require specific spaces that must be taken into account from the beginning.



It is necessary to plan and reserve separate rooms for photocopying machines, which should not be located in the reading rooms or the staff offices because the gas they release is harmful for the health. Microfilms require specific storing areas : microfilms that can be accessed by the public should be kept in a storing area with a temperature close to that of the reading room, because sudden temperature changes are harmful. On the contrary, microfilms stored for long-term preservation will be better preserved at a cooler ambient and steady temperature.

Back-up collections and acetate films should be stored outside the library, the films because of the risk of fire inherent to that kind of material, and the back up collection because in case of a disaster in the library, it is essential

that the back up collection be safely preserved elsewhere (as it is already the case with the deposit of the National Library of Norway that some of you have just visited in Mo i Rana).



If money does not pose a problem- one can always dream-we could recommend building a spare area where the damaged documents can be displayed, dried and sorted before treatment. In the US, four institutions (among which Cornell and Syracuse University Libraries) have joined efforts to build a deep freezing unit to store wet documents if necessary. Such an achievement may seem unrealistic for a single institution. Nevertheless, it is my personal opinion that we should concentrate our efforts on finding ways to improve and generalize joint preventive measures. Cooperation between institutions on a local, national or regional level is certainly the way towards success.

*

As a conclusion I'd like to apologize for not having been more precise or more technical, but, don't be mistaken, I could have given you figures and I could have listed materials, and drawn ideal plans ... This was not my purpose today.

For me, preservation is more of an attitude or a philosophy than a set of technical measures. It requires common sense and experience. Standards, guidelines, and best practices exist but they need to be adapted to each individual situations. It is just like with children, there is no single way to raise them, each one being unique.

The only thing I would like you to retain when this session is over, is that preservation should not be considered as a separate and specific mission within the library, but that it is an omnipresent function that is to be found everywhere, whatever the activity : acquisition, sorting, binding, cataloguing, lending, reformatting, exhibiting, etc... And of course this must be in the forefront of your minds when planning a new building.

Thank you all for your attention.