

LS

CONSERVATION PROJECT

5.1. PRESERVATION OF PAPER-BASED DOCUMENTS

INTRODUCTION

The two essential goals of a cultural institution like a museum, library or archives are to acquire, enrich and preserve a collection and to facilitate access to the documents by means of publications, researches, exhibitions and consultation¹.

These goals might seem, at first sight, conflicting because access can compromise the preservation of a document requiring permanent preservation and a constant respect for its integrity and authenticity. How can we protect documents while still using them? How can we give access to documents without damaging them?

The fulfilment of these two missions depends on the establishment of a comprehensive preservation² programme that includes a system of plans, policies, procedures and resources required to properly prevent, stop or slow down the deterioration of the documents while also, if necessary, improving the preservation conditions of the collections. An active preservation programme encourages respect for the library and its collections, reduces the loss of materials

1. Two statements confirm these missions:

1. "A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment," ICOM Statutes art.3 para.1

2. "Every library collection is established for one or more definite purposes. A collection development and management program organizes and directs the processes of acquiring materials, integrating them into coherent collections, managing their growth and maintenance, and deselecting them when appropriate in a cost- and user-beneficial way," Bonita Bryant, ed., "Guide for Written Collection Policy Statements," Collection Management and Development Guides, (Chicago and London: American Library Association, 1989).

3. "Preservation" is the set of actions taken to prevent, stop or retard deterioration of library materials through the management of the storage environment, housing materials and techniques, security, handling practices, as well as through user and staff education. "Conservation" implies the actions taken to prevent, stop, or retard deterioration of individual items through treatment level intervention into the physical state of the document. "Preservation" is used here as the broader term encompassing both preservation and conservation.



through neglect or carelessness, and conserves resources through the application of preventive and corrective measures. It guarantees the development of the library as well as access to information and minimizes document deterioration.

Storage, security, pollution, fire risk, chemical and physical deteriorations, the nature of existing buildings (historical or new), the prevailing climate (both geographical (continental, temperate, tropical, etc.) and microclimate (town, district, etc.)), the social and financial circumstances, and the purpose of the collection all have to be considered when a preservation programme is established. It must be interpreted and applied in a way that serves the purpose of the library and the needs of the collections and considers the relations between all library services and functions.

The preservation programme integrates the preventive conservation concept at all stages from acquisition to display. A coherent preservation programme has to be implemented in stages, going from assessment of the functioning of the institution to the inspection of storage facilities, and from the state of conservation of the building to the state of the collection giving an overview of the causes and consequences of deterioration. This makes it easier to rank risks in order of importance and helps to determine the priorities in risk prevention and/or treatment of damage.

Many elements are necessary to start and maintain a successful preservation programme. A variety of methods exist to protect documents physically and ensure

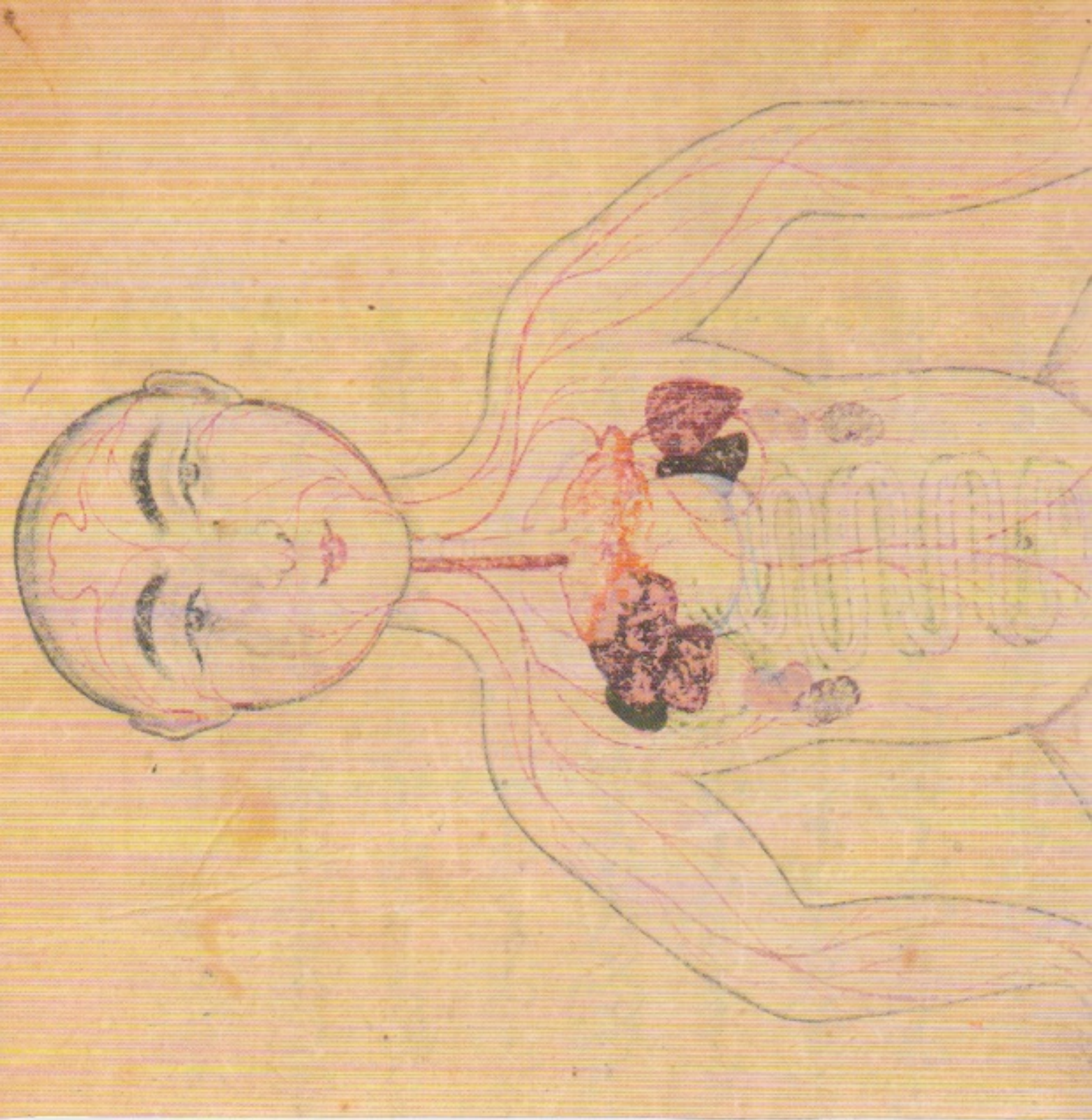
their stability and security. Environmental controls, the use of quality storage containers, and good handling practices will help extend the life of collections. Naturally, the steps available to protect and preserve documents will vary depending on the availability of resources in different institutions. The subject of preservation can be highly technical. It is important to remember that remedial item-by-item conservation is an expensive service, requiring the participation of skilled and trained conservation specialists.

This paper explains the main elements needed for the construction of a preservation programme. It is constructed in the belief that the programme has to be a collaborative work. In this spirit, this paper brings together four main elements organized in a way to illustrate the core sequences of an approach. It starts with the main causes of deterioration of paper-based documents, continues with a look at assessment methods, and finishes with some preventive measures and a set of trainings.

CAUSES OF DETERIORATION

External causes of deterioration

Access is not the only cause of deterioration. Collections tend to deteriorate due to a combination of internal and external causes. External degradation can be environmental, chemical, biological or mechanical. The most damaging internal causes are found in paper



موانع و احوال
نکته شرح و بیان



باز و نه است
بسیارند خردین و ناز
است و اندک است



انصورت است که نامش بر از دست و دم یک است

میکند



made from wood. Inks and iron gall¹ inks must also be counted among the internal degrading agents of paper. Not only is it necessary to have a thorough knowledge of document deterioration factors, it is also essential to know how to implement a coherent preservation programme.

Light

The part of the spectrum of electromagnetic waves that is visible to our eyes—light—is a common cause of damage to library and archival collections. Paper, bindings and media (inks, photographic emulsions, dyes and pigments) are particularly sensitive to light. Light damage manifests itself in many ways. It can cause paper to bleach, yellow or darken and it can weaken the cellulose fibres that make up paper, causing them to become brittle. Media and dyes used in documents, photographs and art works can fade or change colour due to light exposure. Fading can also be considered a form of light damage but this is only a superficial indication of deterioration that extends to the physical and chemical structure of collections. Light provides energy to fuel the chemical reactions that produce deterioration (see Figure 1).

While most people know that ultraviolet (UV) light is destructive, it is important to remember that all light causes damage. UV radiation causes photochemical deterioration. Infrared radiation causes deterioration by heating and affecting the microclimate. Visible radiation itself carries certain dangers, as it still carries

enough energy to cause changes at a molecular level. Light damage is cumulative and irreversible.

Temperature and relative humidity

Control of temperature and relative humidity is critical in the preservation of library and archival collections because unacceptable levels of these contribute significantly to the breakdown of materials. Temperature is a measure of heat. Humidity is the concentration of water in the air. Heat accelerates deterioration and harmful chemical reactions. High relative humidity provides the moisture necessary to promote damaging chemical reactions in materials and, in combination with high temperature, encourages microorganism growth and insect activity. Extremely low relative humidity, which can occur in winter in centrally heated buildings, may lead to desiccation and embrittlement of some materials.

Materials are hygroscopic and sensitive to the environment in varying degrees (Table 1). Fluctuations in temperature and relative humidity are also damaging (Figures 2 and 7). Library materials respond to diurnal and seasonal changes in

1. Ink whose basic components are iron and tannin, found in galls or other plant material. As a result of the iron used to make the ink, most iron gall inks are susceptible to corrosion. The ink in the paper roasts the same way any metal would when it is exposed to changes in temperature and humidity. As it deteriorates over time, the chemicals released from the corrosion seep into the paper, discoloring and weakening it.

temperature and relative humidity by absorbing and releasing moisture and by expanding and contracting. Dimensional changes accelerate deterioration and lead to such visible damage as cockling paper, flaking ink, warped covers on books and cracked emulsion on photographs. In some situations, however, materials may be protected from moderate fluctuations with boxing and packaging.

Table 1: Conservation condition for most important materials in libraries

Material	Temperature	Relative Humidity	Light	Major risk
Paper	16 to 22 °C	35 to 55%	50 or 150 lux	Insects, microorganism, chemical and photochemical degradation, dimensional stability
Cellulose nitrate	10°C	< 50%	50 lux	heat, light
Photos	2°C for colour-red photos 18°C for other types of photos	30-50%	Varieties	light, climate
Leather	16 to 22 °C	40 to 55%	50 or 150 lux	Insects, microorganism
Wood	16 to 18 °C	50 to 60%	> 150 lux	Insects, dimensional stability
Textile	16 to 20 °C	40 to 55%	50 or 150 lux	Insects, microorganism, chemical and photochemical degradation

Dust and pollution

An important factor of damage to a collection is air pollution composed of chemical air pollutants and dust. The dust, consisting largely of organic material, is strongly hygroscopic and can constitute a microclimate convenient to the development of microorganisms as well as a depot of nourishing elements for insects.

Gaseous pollutants (Table 2) can be emitted from poor quality storage furniture and packaging materials, or even from other collection items manufactured from unstable materials. Gaseous pollutants catalyse chemical deterioration of materials by oxidation¹ and hydrolysis². Solid pollutants cause mechanical deterioration by abrasion and encourage the spread of mould and insects. Both dust and pollutants are dangerous for human health and for collections.

Table 2: Maximum recommended levels of pollutant gases

Sulphur dioxide	1 µg/m ³
Oxides of nitrogen	5 µg/m ³
Ozone	25 µg/m ³
Carbon dioxide	45 µg/m ³
Dust particles	75 µg/m ³

1. Chemical reaction in which one or more free electron is released.
2. Decomposition of organic compounds by interaction with water.



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7



Fig. 8



Fig. 9

Biological activity

The materials of which library and archive collections are composed, namely paper, parchment, birch bark, leather, and adhesives used in bookbinding, are susceptible to biological deterioration caused by insect attack (Figure 5) and/or fungal growth because these agents feed on the organic layers they find in the materials. This form of deterioration is connected with environmental conditions because humid conditions favour the growth of fungi and insects are attracted by the accumulation of dust and dirt. The absence of ventilation and darkness also encourage the spread of biological activity, producing irreversible damage.

Mechanical damage

It goes without saying that disasters (floods, fires, etc.) can cause the most serious mechanical damage on documents. Fires cause widespread damage and massive losses (Figure 6). Water is a serious threat to collections. Water damage may be due to pipes, roofs, flooded rivers, hurricanes and fire fighting. When water damage is not discovered in time, or when rescue measures are insufficient for the scale of the disaster, further damage is generally caused by mould.

Other mechanical damages can be caused by natural disasters (earthquakes) or accidental situations (collapse of a roof or a shelf). Nevertheless, mechanical deterioration is most frequently caused by poor handling of documents while they are being moved, made available

to readers, stored (see Figures 3 and 4), photocopied or photographed.

Theft and vandalism

Collections can be threatened not just by disasters, careless handling or poor environmental control, but also by theft and vandalism (Figure 8) that may lead to the total loss of a document. These risks are normally dealt with by the security service. It is an unfortunate reality that libraries and archives must be concerned about the security of their collections.

INTERNAL CAUSES OF DETERIORATION

Materials and processes

The materials and processes used in the manufacture of the paper can bring about its deterioration. Innovations in the industry and the introduction of alum-rosin¹ sizes to the pulp, followed by chlorine

1. As a sizing ingredient, alum has been one of the most important materials in the history of papermaking. Since the late 19th century it has also been mentioned as a primary cause of paper degradation. The two major alum varieties employed in papermaking have not always been distinguished for their different properties. Aluminum potassium sulfate was used throughout the history of papermaking until the 19th century. It was then replaced by the newly developed aluminum sulfate, a cheaper and more concentrated source of aluminum compounds. Although both aluminum potassium sulfate and aluminum sulfate tend to introduce different impurities into paper.

bleaches in the 18th century, led to much paper that was inherently weaker than earlier types. Today the main cause of paper deterioration is the industry's dependence on mechanical wood pulp, in use since the mid-19th century. When chemically treated, wood pulp can make a very stable and good quality paper. But in its rough, mechanically pulped form (as used for newsprint), wood pulp contains lignin¹, which, like the acid products of chlorine bleaches and alum leads to the breakdown of the cellulose that gives paper its strength. The paper consequently becomes brittle, more vulnerable to mechanical damage and often discoloured. Other additives that can contribute to this deterioration include vegetable oils, some coloured dyes and metallic particles.

Ink

Iron gall ink can cause the degradation of paper or other supports. This process is called 'iron gall ink corrosion.' Chemical processes cause the slow deterioration of the ink. Turning from blue-black to dark brown, ink can actively oxidize and corrode the paper (see Figure 6) if certain negative conditions are met.

Assessment

It is essential to know and to identify the characteristics and the fragility of paper-based documents before assessing the collection and the building in which it is

housed. Before recognizing the hazards to a collection, factors such as environment, storage, security and access, housekeeping, conservation treatment, and policies and practices must be considered. Indeed the various problems are often connected to the complexity of the institution, to the nature, the size and the importance of the collection, to the organisation of the institution, and to the influence the building itself has on the preservation of the collection.

To assess a cultural institution and its collections means to describe and to analyze a situation through the functioning of the collection and the conditions of its use, including its qualities and vulnerabilities. Once that it is done, conditions of the change can be prepared along with decision-making procedures that are more adapted to the institution being assessed.

The assessment allows for the identification of preservation problems and measures the risks for the collections. Going further than a simple report, the assessment is followed up by propositions, advice, recommendations and action plans for the improvement of the preservation conditions and of the functioning of the institution. These recommended actions are classified in short-, medium- and long-term. A needs assessment survey can be conducted by an outside consultant or by qualified

1. A naturally occurring component of plant life that helps provide strength in plants, lignin is often removed from paper during paper manufacturing to improve the quality and life of the paper. Its presence in paper may contribute to chemical degradation. Newsprint and various inexpensive or low quality papers that don't have the lignin removed will turn yellow over time.

in-house staff. There are advantages and disadvantages to both which should be considered before a decision is made to hire an outside surveyor or to begin the process in-house.

Most institutions have many preservation needs that require a variety of actions. Resources in an institution are always limited and not every action can be accomplished. It is crucial to determine which actions are the most important so that those receive consideration first. It is helpful to consider three criteria when prioritizing¹ preservation actions:

- **Impact**—the greater the impact of an action, the higher its priority;
- **Feasibility** of implementing an action—the political feasibility of various actions must also be realistically evaluated. If it is not likely that an action can be implemented, it may be given a low priority even if its impact is high; and
- **Urgency**—those actions requiring immediate implementation would be given the highest priority.

Survey

One of the most significant ways to define the extent of a conservation problem is to look at the material in detail. A structured survey, clearly thought through and with achievable goals, can provide information on a number of different levels. It can outline the generalities, give a very detailed analysis, and provide unique management information. It is not always possible or desirable to look at every item. A percentage sample

will give enough indicators to enable policy decisions to be formulated and priorities drawn up. It is recommended that the methodology of a survey plan be tested before embarking on the project.

The results of a survey should form the basic requirement for background information in the grant application processes.

PREVENTIVE MEASURES

Disaster plan

The collections in libraries, archives, museums and other cultural institutions are constantly at risk of damage or loss from events such as geographic and climatic hazards and other risks that could put in danger the building and collections. These hazards and risks include earthquakes, hurricanes, fire, flood and volcanic eruptions. Man-made disasters should also be considered such as power outages, sprinkler discharges, fuel or water supply failures, chemical spills, inflammable conditions, bomb threats, chemical industries or shipping routes for hazardous materials.

To reduce the chances that a disaster will occur and to minimize damage to collections if a disaster does occur, each institution should have a disaster preparedness and response plan. Disaster preparedness is an ongoing

1. Prioritizing is the process of deciding which actions will have the most significant impact, which are the most important and which are the most feasible.

process that includes identifying risks and potential hazards to the collections, taking steps to eliminate or reduce those risks whenever possible, and developing and maintaining a disaster response capability to minimize damage or loss in the event of a disaster.

The best way to deal with a disaster is to be prepared for it with a written emergency preparedness plan. This formally written plan facilitates the efficient and quick response to an emergency and minimizes danger to staff and damage to the collections and building. The plan, based on a risk assessment report, includes specific procedures on prevention and mitigation of the risk assessed, immediate response steps, salvage procedures, local emergency contact list, emergency resources outside the institution, and upkeep activities.

Modification of environment conditions

The ideal environment for collections is one where the temperature and relative humidity are controlled, it is free from pollutants, it has good ventilation, the light is controlled, it is free from mould, insects and rodents, and where good maintenance and security practices (measures against fire, water damage and theft) are applied.

Climate

Installation of adequate climate controls and their maintenance will considerably retard the deterioration

of materials. Maintaining stable conditions is essential. The Institution should choose a temperature and relative humidity within the recommended ranges (Table 1) and maintain them 24 hours a day, 365 days a year. Where economics or inadequate mechanical systems make it impossible to maintain ideal conditions year round, less stringent standards may be chosen for summer and winter with gradual changes in temperature and relative humidity permitted between the two seasons. Because of the interdependence of temperature and relative humidity it is imperative to always control both parameters simultaneously. If measures are taken without considering the environment as a whole, conditions may worsen rather than improve.

Temperature and relative humidity should be systematically measured and recorded. This is important due to the type of data produced which documents the existing environmental conditions, supports the requests to install environmental controls, and indicates whether available climate-control equipment is operating properly and producing the desired conditions. A psychrometric chart (see Figure 7) is an essential tool to understand the six possibilities in changing the climate conditions:

1. Humidify the air—raise the absolute humidity to increase the relative humidity while keeping the temperature constant;
2. Humidify the air—raise the absolute humidity to keep the relative humidity stable if the temperature goes up;
3. Dehumidify the air—reduce the absolute humidity to keep the relative humidity stable if the temperature goes down;

4. Dehumidify the air—reduce the absolute humidity to reduce the relative humidity while keeping the temperature constant;
5. Cooling the air—reduce the temperature to increase the relative humidity while keeping the absolute humidity constant; and
6. Heating the air—raise the temperature to reduce the relative humidity while keeping the absolute humidity constant.

Light

Because total damage caused by light is a function of both intensity and duration of exposure, illumination should be kept as low as possible for the briefest amount of time feasible. Ideally materials should be exposed to light only while in use. When not in use, they should be stored in a light-tight container or in a windowless room illuminated only when materials are being retrieved. Light levels should be as low as possible and exposure should be for the shortest time that is feasible.

For an exhibition, the light exposure level must not exceed 84 Klux hours/year and must even be reduced to 12.5 Klux hours/year for certain documents made of very sensitive paper. These levels are important because the photochemical action of electromagnetic rays is cumulative. For example, the damage caused to a document by lighting at 50 lux for 10,000 hours (three years at eight hours per day) is the same as the damage caused by lighting

at 1,000 lux for 500 hours (approximately eight hours per day for two months).

Naturally, visible radiation must also be controlled. Windows should be covered by drapes, shades, blinds, or shutters that completely block the sun. This will also aid in temperature control by minimizing heat loss and limiting generation of heat by sunlight during the day. Ultraviolet-filtering plastic films or UV-filtering Plexiglas can be used for windows to lower the amount of UV radiation passing through them. An alternative is the use of special low-UV fluorescent tubes. Timed switches should be used for lights in storage areas to help limit duration of exposure of materials.

Dust and air pollution

Controlling air quality is difficult and complex and depends upon several inter-related factors. Various standards for air quality can be suggested. However, until more experience is gained, the most reasonable recommendation is that the amount of pollutants in the air be reduced as much as practicable. Gaseous contaminants can be removed by chemical filters, wet scrubbers or a combination of both. Particulate matter can be mechanically filtered. Electrostatic precipitators should not be used because they produce ozone.

Equipment also varies greatly in effectiveness. It is important that the equipment chosen be suited to the institution's needs and the level of pollution in the area where the institution is located. A regular schedule of maintenance and filter replacement should be followed.

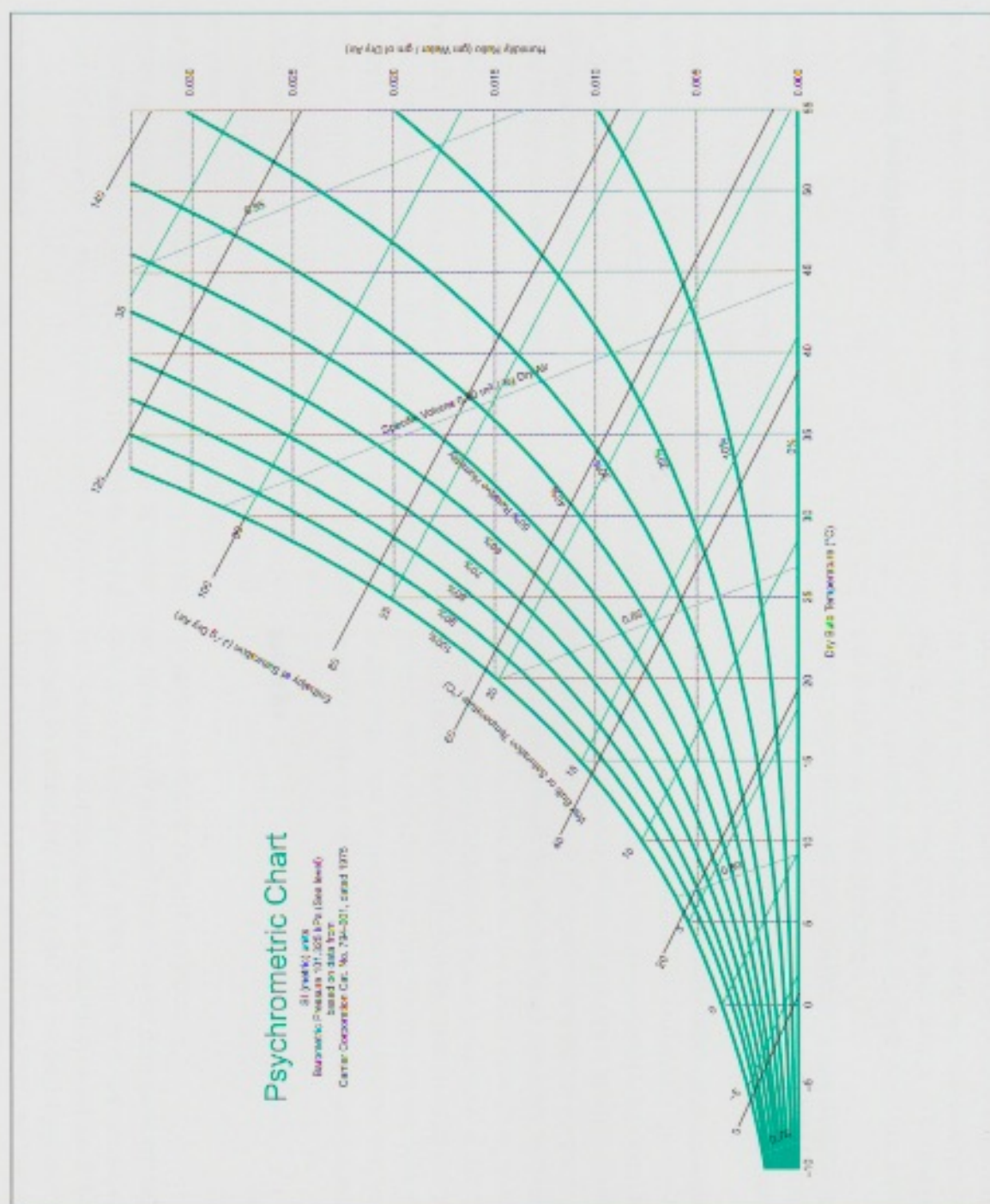


Chart 1

Biological agents

Most of the insect species likely to infest paper collections are attracted not by the paper itself but by the sizes, adhesives and starches, all of which are more easily digested than the cellulose that makes up paper. Integrated pest management strategies encourage ongoing maintenance and housekeeping to ensure that pests will not find a hospitable environment in a archive or library building. Management activities include building inspection and maintenance, climate control, restriction of food and plants, insect identification, staff training, regular cleaning, proper storage, control over incoming collections to avoid infestation of existing collections, and routine monitoring for pests. It is best to begin a formal pest management programme with an initial survey of the building, surrounding areas and all collection storage areas. This assessment may include looking at the history of any previous infestations to document pests that have caused damage in the past and what was done to solve the problem.

Control of temperature, relative humidity and air circulation will reduce the likelihood of damage from mould.

Theft and vandalism

It is recommended that all repositories conduct a security survey and draw up a security plan. While there is a place for automated security systems of various

types, a repository must not depend solely on these systems to protect its collection. Its security plan must also include policies and procedures regulating access to the collection by staff and users, mechanisms for identifying missing documents, and procedures for responding to a security violation.

Storage

Storage areas are an important part of an institution in the same way as the spaces of consultation and exhibition are important and are conceived according to the library environment. Storage areas have to be integrated into the functioning of the institution. A good storage policy must answer the requirements of preservation by limiting and anticipating the risks of damage and by setting up favourable conditions for preservation and facilitating access to the collections to make it possible for the study and dissemination of cultural property. It also has to permit the movement of collections while guaranteeing the conservation and the safety of cultural property.

Storage policy has to take into account the evolution and growth of the library. It is an evolving system that should be adapted to the changing of the institution and to the most recent standards.

Each storage situation is unique with its own set of problems and constraints, but it is possible to have a list of suggestions and recommendations that are universal. It is important to organize storage space in the best way so that the location of shelves

is as safe as possible and circulation in the storage area is easy and doesn't represent a risk of degradation for the documents.

There are as many varieties of library stacks and shelving as there are materials that sit on the shelves. Since a book stack can occupy more than 50 percent of a library's storage space, careful planning for shelving can be a large part of a library building project. Components and accessories include end panels, canopy tops, sloped shelves, slotted divider shelves, display shelves, and retractable index shelves. The selection of suitable storage furniture is a complicated task. What constitutes acceptable storage furniture can change rapidly. Poor quality storage furniture greatly accelerates the deterioration of collections.

Properly preparing or processing the documents prior to storage can save the documents from future damage. Safe processing and handling of materials is basically a matter of common sense. It is necessary to be constantly aware that the documents processed and manipulated are often old, fragile and irreplaceable.

Books must be shelved in a logical, structured system otherwise locating specific books quickly becomes impossible. Each library can have a different system to organise books. This system should be the result of active research that dictates the most useful way for the library to follow national or international standards.

Boxes, enclosures and folders should protect manuscripts and archive documents. Storage containers will protect collections from dirt and light. They will also

facilitate organisation, handling and identification while helping to buffer rapid environmental changes that can stress the documents. Drop-spine boxes are preferable because they provide better support and keep books cleaner.

To reduce the amount of dust and dirt that accumulates on books and shelving, floors in book storage areas should be kept as clean as possible. Dust and dirt abrades pages and binding surfaces, attracts insects, and contributes to an environment that supports microorganism growth. With a regular dust removal and cleaning programme, personnel are contributing greatly to the preservation of the collections. This basic task is one of the most important in preserving collections.

Digitization

When documents are extremely fragile, heavily used, deteriorating or highly valuable, it is common for institutions to reproduce the materials and make the copies available for research use. The originals are then kept in safe storage or sent for conservation treatment. Facsimile copying of documents helps preserve materials in two ways. First, making one or more copies allow multiple access to the information embodied within a book or document. Second, copying limits the use of the original work, saving it from wear and tear. Systematic copying of materials at risk is an essential element in preservation programmes. There are a number of methods of reproduction or reprography, including

microfilming, photocopying, photographic reproduction and digitisation.

The key to a successful digital project is planning. Digital projects are complex, time-consuming, and costly. Some key components of a digital project include selection, standard and access.

- Selection deals with issues that should be considered when selecting material for digitization, including intellectual value of the collection to researchers, use of the document, physical condition of the document, preservation work to be done prior to digitization, and copyright permission.
- Standards for digitization—there are many best practices recommendations for digitizing materials. Remember that these guidelines may require adaptation to particular projects dependent upon source document characteristics such as font size, photographic detail and physical size.
- Access deals with issues in organisation, management, and delivery of the digital collection, including cataloging and technical data associated with digital images, storage of the images, and backup/disaster recovery. Copies of all digital image files are recommended with one copy stored off-site. Other access issues include rights management, viewing software, and reformatting/refreshing media to avoid inevitable data degradation.

Trainings

Training of library personnel and its users is very essential to raise preservation awareness. This concerns

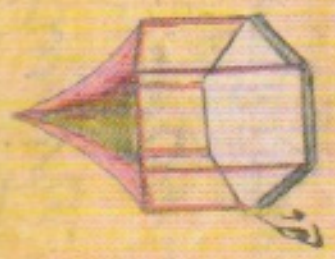
all library personnel, from conservators, cataloguers, maintenance workers, technicians, and others.

The appropriate training must follow every new procedure defined to respect a policy or a preventive measure. This especially concerns maintenance, housekeeping, shelving, packaging, boxing, surveillance, handling, digitization and conservation. An important part of conserving a section's work is the training of the personnel who will manipulate the documents. For example, in a digitization project, proper training is required for the preparation of the material identified for copying. Material that has suffered damage will require different levels of conservation first aid to ensure that the information to be recorded is presented in the most secure and legible way. It is recommended that a conservator be consulted during the planning phase of a copying programme.

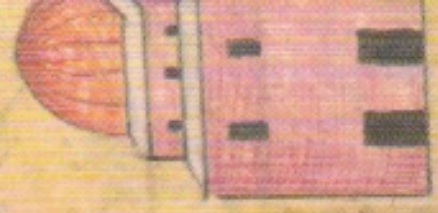
All personnel will carry out a biannual review of the standards and procedures in consultation with the director of each department and the director of the library. This ensures that the procedures and recommendations are based on the most current standards, information, researches and publications and they provide a good operational framework for preservation, management programmes and projects. It is equally important to ensure that an appropriately-trained staff is involved in all of these considerations.

The local manager must identify the best staff to receive the instruction and should plan appropriate technical training as part of the overall project.

The role that training can play in human resource development, especially in libraries, is inestimable



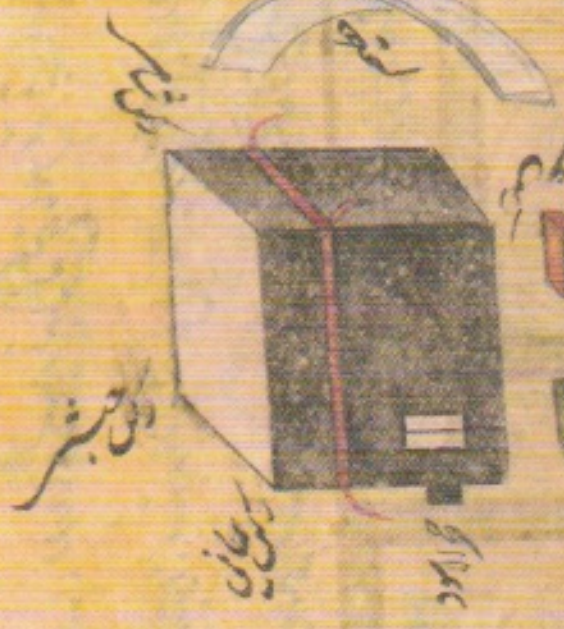
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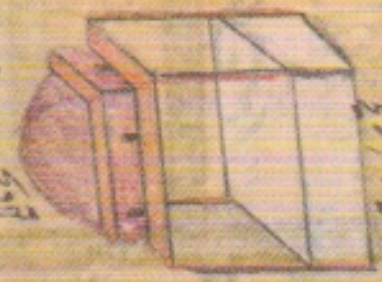
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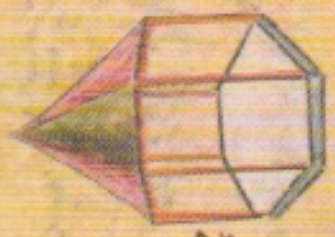
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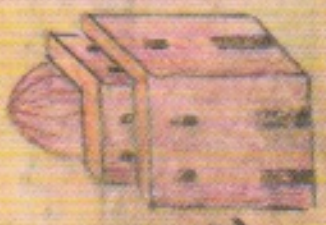
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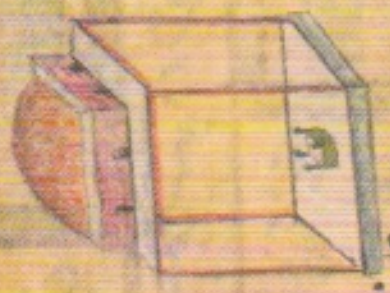
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and unquantifiable. The training of staff enhances productivity. Another advantage of staff training is that it improves job performance and therefore promotes management efficiency. Other advantages of training include reduction in cost, reduced turnover, human resources

reserve, faster decision making, continuity of effort, improvement in employee morale, availability for future personnel needs of the organisation, improvement in health and safety, reduced supervision, personal growth, and organisational stability.