The Need to Keep Books, Archives and Rare Documents "Alive"

Marina Nikta
Municipal Library of Korydallos, Manager of Cultural Units

1. A first approach

Archives and libraries around the world are threatened by the huge problem of downgrading and destroying their collections. The causes of the problem are many and interconnected: endogenous chemical instability of the materials in the collections, inappropriate environmental conditions, incorrect storage and handling practices, natural disasters, theft, vandalism, but also ignorance and / or indifference of people in charge, low level of people involved. The great importance of preserving the information contained in these collections is obvious, as this is the raw material from which historians and other researchers will derive the primary material needed for their research. The main way in which this information is retained is to preserve as much of its substrate as possible, namely the paper, the parchment and the other media on which it is imprinted. The country's libraries have a large number of books and various other materials. The part of their material that is unique and of historical value must be preserved for the same reason as for the archival material. As for the rest of their material, although each individual book may not have significant artistic, financial, symbolic, historical, or emotional value, all of the material is an investment of very high-value for the libraries that must be protected, mainly through good storage.

2. Book and archive material maintenance: how and why

Before assessing the needs of libraries, let first consider the content of the term 'maintenance'. This term includes all the measures to be taken when storing and handling the material, which address and eliminate any potential harmful effects on the material and contribute to extending its useful life as much as possible. These measures concern, in particular, the climatic conditions of storage of material, the quality and intensity of lighting in storage areas, the quality of air, the practices and systems of storage, security, building infrastructures and any

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action taken directly or indirectly that can have an impact on the condition of the material[1].

The recycling of air, dust, and the natural light of outdoor openings can create an idyllic atmosphere, but they are not considered to be the best environment for the aging of books. The particulate matter that contaminates books is complex and may consist of air pollutants, skin or fabric fibers, moisture or fungi, which reduce the aesthetic value and affect the mechanisms causing damage to the books. According to book and archive preservationists, old books and documents deal with three great enemies, who harm them, and many times destroy them[2]. These enemies are dust, biological damage and light. The first and most common enemy is dust, which has the ability to penetrate into the book, mainly in the back region, and this creates serious static problems. The back is the most important part of the book, the place where all the pages are stitched. There is the cover that protects the spine, but if the spine starts to break down, it breaks down page by page and the book is completely destroyed. Another risk is biological damage. Humidity is the most important cause of biological deterioration. For many years, the conservation community, which specializes in paper maintenance, has been dealing with the problem of humidity, which, unfortunately, has not yet been resolved. Moisture is primarily responsible for the damage caused to books. It is caused either by poor storage conditions or by an unexpected flood. It is directly responsible for mold formation but at the same time it creates the proper conditions for the books to be attacked by moisture-borne microorganisms, such as fungi and carrots, resulting in pages being "eaten" by them. Finally, the third and greatest enemy is the light and the damage it causes which begins to appear much later. This is a deterioration that we do not see directly. It starts to look after 90 years and it's long term. For example, if we have old newspapers in our homes, even though we take care of them and do not use them often, we will see them turn yellow and then start to crumble. Today, modern pulp contains cellulose, which is the raw material for making paper. Cellulose is a macromolecule and light has the ability to break it down, thereby dissolving the base of the paper. This is why we pay close attention to light on paper works of art (in museums, for example, the lighting is very low, specific and measured). However, the danger is not only the electric light but also the sun. Light accelerates degradation of archival and library material, causing photochemical reactions of oxidation and depolymerization of cellulose (Feller, 1994, Havermans & Dufour, 1997, Forsskahl, 2000). At the same time, it activates the cycle of photochemical reactions in space, which will lead to the creation of hazardous pollutants for the materials of the collections. It causes paper to fade and causes color changes (bleaching or yellowing). It can also cause fading or discoloration of pigments and inks, reducing readability and altering the appearance of documents, photos,

[1]Calmes et al , (1988: 96-111), Nyuksha (1994: 55-63)

[2] Library and Archives Conservation Laboratory of the Central Library of the University of Crete, Πηγή: www.lib.uoc.gr. Τελευταία πρόσβαση: 3/6/2019

artwork and bookbinding. Any exposure to light, even of short duration, is harmful, and the damage caused is cumulative and irreversible (Glaser, 1999). Although all wavelengths are harmful, the ultraviolet part of the spectrum (UV light below 415 nm) is the most destructive for archival and bibliographic material due to its high energy content. Ultraviolet radiation limit for archives and libraries is 75 μw / lux4 (Glaser, 1999, ISO 11799, 2003[3]). The sun and halogen and fluorescent lamps are the most destructive sources of light because they emit large amounts of ultraviolet radiation. Material protection measures focus on excluding harmful radiation (DenTeuling, 1996, Glaser, 1999, Ogden, 1999b, Patkus, 1999c, ISO 11799, 2003). Windows should be covered with heavy curtains and shutters so that sunlight can be completely prevented from penetrating storage areas.

But besides the causes that cause paper damage, there are also the damage we do ourselves when using books (the way we use them, the frequency, the bad storage conditions). In addition, materials we use to allegedly tear pages together, daily careless use, oxidized staples are a threat to books. In conclusion, the destruction of a book is not only achieved by its aging and its preservation conditions, as well as the way it is used, but also by the quality of pulp used.[4]
Most of these issues are regulated[5] by various international standards[6], which have not been incorporated into the rules and practices of our country's libraries. However, in summary, to address these issues we mention:

1. *Climatic conditions of storage*: all the materials that make up books such as glues, paper, skin, etc., degenerate over time and this is what is called "natural aging". The natural aging of the paper results in the loss of mechanical strength and unwanted color changes. Increasing

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[3] **ISO 11799:2003**, Information and documentation - Document storage requirements for archive and library materials

4 The data relate to the international rules of the **University of Crete Library Conservation Laboratory** for the number of old books it hosts, following the manner of preventive maintenance by the Canadian and French Libraries Institute. Interview given on 18/07/2014 in RETHEMNIATIKA NEWS by the book and archive keeper, Ms. Niki Petrakis. Source: http://www.rethnea.gr/article.aspx?id=16337. Last access 25/06/2019

5 An extensive presentation of each aspect of conservation measures is available at the Preservation of the Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition, available free of charge in acrobat reader document (pdf) on the website: www.nedcc.org/ [Last access: 24-6-2019].

[6] **International Organizations and Institutes of Maintenance**: International council on Archives (I.C.A.) www.archives.ca/ICA/, --International Federation of Library Associations – National Library of Canada (I.F.LA.) www.nic-bnc.ca/ifla, --The IFLA/PAC Programme de preservation et conservation de L' IFLA www.bnf/pages/infopro/sib/on pacpresent.htm, --Bibliotheque Nationale de France, www.bnf.fr/pafes/connatr/cons pres.htm, -- Canadian Conservation Institute (C.C.I.) www.cci-icc.gr.ca/--Institute of paper Conservation (I.P.C.) www.ipc.org.uk./ -- International Institute for Conservation (I.I.C.)- London, palimpsest.stanford.edu/ipc/ Source: www.lib.uoc.gr. Last access 20/6/2019

temperature also plays a major role, and consequently keeping it low results in slow aging rates. The various standards constitute a constant temperature in the range of 17-21ºC with a variation of ± 2ºC and a constant relative humidity of 50% with a variation of ± 5%. It is true that lower temperatures would work even better, but they are prohibitive for economic and practical reasons. Changes in temperature and relative humidity cause changes with negative effects on the consistency of materials, loss of strength, deformation, etc..[7] Proposed conditions can be achieved with the use of air conditioners but also with the design of bioclimatic buildings[8] and storage in underground areas can reduce the operational cost of a library.

2. Lighting. Light as a form of energy when absorbed causes chemical reactions, with the most dangerous the UV component of the spectrum since it has the highest energy content. As light causes color changes, whitening or yellowing, fading of inks and pigments, loss of mechanical paper strength, storage areas, when not necessary, should not be illuminated. Of course, when it comes to natural light, it should be completely excluded and, in the extreme case heavy curtains and ultraviolet filters, should be used in windows. Suitable are incandescent light bulbs and special UV light bulbs whose intensity of light cannot exceed 50 lux[9].

3. Storage and management related to:

- methods and materials used for binding
- shelving and library systems used
- the way of placing the material on the shelves
- handling, lending and reproducing material
- frequency of cleaning storage space
- quality of construction materials for envelopes, boxes etc. used for sorting and storing material
- large-scale storage systems for drawers, rollers, etc.[10]

4. Air quality

Gaseous pollutants produced in a library space or transported from the outside environment are factors that can greatly increase the normal speed of chemical reactions that cause paper aging (hydrolysis, oxidation of cellulose paper). In general, air quality control is complex

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[7] Nicholson (1992: 95-113), Fellers et al (1989).

8 Buchmann (1998), Stehkamper (1988).

[9] Den Teulin (1996).

[10] Ogden, S., (1999b). «Storage Methods and Handling Practices», in: Preservation of Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition, Section 4: Storage and Handling, Leaflet 1. -- Ogden, S., (1999a). «Storage Furniture: A Brief Review of Current Options», in: Preservation of Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition, Section 4: Storage and Handling, Leaflet 2.

and expensive. However, although various standards have been proposed, the most sensible approach is to try to reduce pollutants to the lowest possible level. This can be achieved by chemical filters and liquid collectors or by a combination of both. Finally, it is necessary to renew the building's indoor air (not to be pumped out of parking spaces, highways etc. because they are polluted), as well as to prohibit indoor polluting activities (i.e. smoking)[11].

5. Safety / "building"

Safety measures ensure library material from fire (fire detection, fire safety)[12], flooding (flood protection projects outside the building)[13], theft and vandalism (alarm installation, reading room and library surveillance, electronic theft control system)[14]. Finally, as far as the building is concerned, it has been found that the coexistence of people and books has negative consequences. Ideal conditions require the exclusivity of reading rooms or bookshops rather than coexistence in the same space[15].

3. Needs / Risk Assessment - Priority Selection

Although all material stored in libraries and archives is in principle considered valuable, there are parts of collections whose value is considered greater. In order to prioritize, the value of the different collections needs to be assessed in order to make decisions and take measures to better preserve the most valuable ones (e.g. by integrating them into an intervention maintenance plan or ensuring optimal storage conditions). First, the artistic, financial, symbolic, historical and emotional value of the collections' objects is assessed with the help of design tools[16] and then a rating catalogue is drawn up. This does not mean that less

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11 Odgen, S., (1999b), Den Teuling (1996).

[12] Artim (1999), Bchmuann (1998).

13 Ogden, S., (1999b). «Protection from Loss: Water and Fire Damage, Biological Agents, Theft, and Vandalism», in: Preservation of Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition, Section 3: Emergency Management, Leaflet 1

[14] Brown & Patkus (1999).

[15] International standard ISO 9706: Information and documentation – Paper for documents – Requirements for permanence (1994). International standard ISO 11108: Information and documentation – Archival paper – Requirements for permanence and durability (1996).

[16]Specific tools have been developed to standardize the decision-making process for conservation planning in archival institutions and libraries. These tools, usually computer applications, include questionnaires that guide the user according to their answers. The most objective assessment of the present state of collection survey and of the preservation survey carried out on-site is a prerequisite for developing an effective conservation plan. (Bell, N., 1993, Creasy, H., 1993, Evans, B., 1993, Richmond, A., 1993, Swift, K., 1993, Ogden, S., 1999b, The Needs Assessment Survey. Preservation of Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition, Section 1: Planning and Prioritizing, Leaflet 3. Retrieved from www.nedcc.org , Gkinni, Z., 2014).

valuable material should not be taken care of, but that existing resources will be hierarchically allocated (Child, 1999).
Applying, of course, a methodology is considered essential for needs assessment and prioritization (Child, 1999, Ogden, 1999a[17]). In addition, it is necessary to make as objective as possible an assessment of the current state of the material and the storage conditions, as well as to collect reliable data on the dimensions of the maintenance problems in order to prioritize and gather information for (Child, 1999, Ogden, 1999b, Gkinni, 2014):

- the current state of the material and the practices in handling and storing the material,
- the environmental conditions of the storage areas,
- the microclimate conditions of the location of the building,
- the security systems and practices applied (alarm, fire safety and extinguishing, etc.),
- the state of the mechanical and electrical equipment and the water supply and sewage installations, as well as the risks they pose to the material,
- the static condition of the building, its waterproofing and the condition of the walls, with regard to the presence of cracks and malfunctions that could constitute an entry point and a concentration of biological hazards,
- whether and to what extent the collections are contaminated by biological agents (fungi, bacteria, insects and rodents) and whether they are active.

Finally, training a library staff in the care and handling of collections of different types (library and archive material, microfilms, etc.), knowledge of emergency plans (which need to be reassessed) and compliance with them, are prerequisites for developing an effective conservation plan.

Specifically: their training is an essential prerequisite for the successful design and implementation of conservation measures. Through education, it must become second nature to the librarian that every aspect of a library's operation affects the material in different ways and the impact on its preservation should always be taken into account[18]. Understanding and rationalizing archival and bibliographic preservation measures can help the professional librarian - archivist to appreciate the importance of their application and the devastating consequences of not applying them. This knowledge can also provide the means for making informed and documented decisions when the rules and "recipes" are exhausted. A librarian needs basic knowledge of physics, chemistry, materials science and engineering to understand at least at the level of principles how

[17] Ogden, S., (1999a), Considerations for Prioritizing. Preservation of Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition, Section 1: Planning and Prioritizing, Leaflet 4. Retrieved from www.nedcc.org
[18] Kufa (1998).

materials age, the influence of temperature and relative humidity and their interdependence, the dangers of gaseous emissions, operation of air conditioners etc.[19] In conclusion, we would say that the teaching of conservation in the schools of Archeology - Librarianship should be enriched with these topics and the relevant subject upgraded.

4. What can be done - Measures to maximize the shelf life of collections

The preservation of books and archive material is achieved through a series of measures that neutralize and counteract any potential harmful effects on them. These measures involve two areas of activity: *Preventive maintenance* and *Interventional maintenance* (Pilette, 2007[20]).

- *Preventive maintenance* (preservation), aimed at preventing the deterioration of all material.

The primary task of an archival organization and one of the key goals of a library is to maximize the life span of their collections. The most effective and cost-effective way to achieve this, is to prevent material degradation to the greatest extent possible, i.e. preventive maintenance. Most activities involve activities performed daily in the archives or library, such as: storage practices in folders, boxes or shelves, cleaning of material and spaces, photocopying and reproduction, minor repairs, bookbinding or withdrawal, if the condition of the hardware does not allow its use. They also concern maintenance, repairs and improvements to the building, fire protection measures, floods, etc. Finally, an integrated climate control system[21] that will provide optimum conditions, keeping the temperature (14-21 ± 2ºC) and relative humidity (30-50 ± 5%) within a tight range and providing adequate ventilation on a constant basis, day and night all year round, is considered the most important preventive maintenance factor (Child, 1999).

- *Interventional maintenance* (conservation), which intervenes on a selected part of the material and is intended to slow down, interrupt or partially reverse the mechanical or chemical degradation

There are now several options available to bulk preserve the entire collections of a library or archive. The major problem of acidic paper can be solved by scraping the material either on individual collections items or in bulk, by installing a mass scraping system (Zimmmerman, 1991, Brandis, 1994, Porck, 2006, Batyetal., 2010, Adams, 2011). However, their high costs, reduced budgets, complexity of facilities, high education and the know-how needed to

19Bansa (1986).
[20]https://www.tandfonline.com/doi/abs/10.1300/J105v31n01_16?journalCode=wcol20
Last access 3/6/2019
[21]HVAC, heating, ventilating, and air conditioning system.

operate and at the same time the cautiousness of organizations do not allow them to be widely accepted. (Cunha, 1987, Thompson, 1988, Porck, 1996). Interventional maintenance also involves the transfer of information to another substrate / reformatting, with the original being withdrawn from daily use at the same time (Child, 1999). Making archival photocopies on archival paper specifications is an old and standardized method. The same is true for microfilming, although more specialized staffing and special storage conditions for archival microfilms are required. Finally, digitization of information is a relatively new method, but may be the best method for processing and distributing information (Owen, 2007, Bell & Natale, 2012).

In conclusion, we would say that, by designing an appropriate strategy, selected items can be integrated into maintenance and / or restoration programs, provided their size and importance justify their adoption as a costly and time consuming process. Choosing the material to be serviced, diagnosing its faults, and choosing the appropriate maintenance methods are some of the issues a library needs to address. Making these decisions requires specialized knowledge and must be done by qualified personnel. In any case, qualified personnel should judge the appropriateness of the method, as well as whether there is a significant loss of information from changing the substrate. Here, it is noted that the original is irreplaceable, especially when it comes to information of great importance and efforts should always be made to maintain it. This is exactly what its withdrawal from everyday use means. To conclude, and according to experts, both areas of activity should be integrated into a plan for the preservation and maintenance of all material. (Middleton, 1977, Calmes, et al., 1988, Kresh, 1996, Buchmann, 1998, Child, 1999, Zervos, 2000, 2003, Zervos & Moropoulou, 2004, Pilette, 2007).

5. Instead of an epilogue

The purpose of this article is to highlight the problem. Solutions must be found by the libraries themselves, if the problem is assessed as significant. Because many issues start with the building and end up with it, the design of a library building is critical and the needs for material preservation must be taken into account at this early stage. The basic principle to be observed is that people and material intended for conservation should not coexist. The spaces intended for bookshelves cannot be reading rooms or offices at the same time, they do not have windows, their lighting adheres to the basic principles and there is an independent air conditioning circuit that can maintain the climatic conditions at the desired values. Also, the air conditioning system must operate continuously and regardless of opening hours. An alternative solution with low operating costs is bioclimatic buildings and storage of material in underground areas. A building that is well designed from the outset has solved the most important problems regarding conservation infrastructure. Significant difficulties will be encountered by libraries whose buildings are not designed to meet these requirements. Important interventions such as opening seals and modifications to the layout and air conditioning systems should be made there. Also,

informing users of good book handling practices, especially during photocopying, can help prevent material from being abused. For the same reason, the reading rooms as well as the photocopiers should be monitored if the user self-service system is implemented. At the same time, the incorporation of international standards on conservation, binding and selection of storage and classification materials into a library's internal rules of procedure guarantees the use of international experience.

One last issue concerning informing users during the transition to the new situation will help them to accept the new measures. It is certain that the implementation of conservation measures will require a revision of many of the library's internal functions, more personnel and possibly a new, more appropriate building. Adaptability and flexibility will help find solutions to practical problems that may arise along the way.

Bibliography

Greek

Zervos, S., (2000), Investigation of criteria and methods for evaluating the suitability of materials and paper / archive maintenance interventions in relation to the design of environmental conditions (Application to the Communist Party of Greece Historical Archive). In IPP Monument Protection (Ed.), Postgraduate Thesis. Athens: National Technical University of Athens.

Zervos, S., (2003), Opportunities, limitations and prospects for archive material maintenance. Paper presented at the Pan-Hellenic Congress of GSA: "The cultural heritage of archives. Archives of research, knowledge and education", Samos.

Zervos, S., & Moropoulou, A., (2004), General principles of archival material conservation. Archive Link, 1, 131-163.

Foreign

Adams, J., (2011), Mass Deacidification Annotated Bibliography 1990-2010. Washington, DC: Library of Congress. Preservation Directorate. Retrieved From http://www.loc.gov/preservation/resources/rt/deacid_bib2011.pdf

Artim, N., «An Introduction to Fire Detection, Alarm, and Automatic Fire Sprinklers», in: Preservation of Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition, Section 3: Emergency Management, Leaflet 2 (1999).

Bansa, H., «The Awareness of Conservation. Reasons for Reorientation in Library Training», Restaurator 7 (1) (1986) 36-47.

Baty, J. W., Maitland, C. L., Minter, W., Hubbe, M. A., & Jordan-Mowery, S. K. (2010), Deacidification for the conservation and preservation of paper-based works: A review. BioResources, 5(3), 1955-2023.

Bell, N., (1993). The Oxford preservation survey. Part two: A method for surveying archives. The Paper Conservator, 17, 53-55.

Bell, L., & Natale, J. (2012). Best Practices and Planning for Digitization Projects, from http://www.webjunction.org/documents/wj/Best_Practices_and_Planning_for_Digitization_Projects.html

Brandis, L., (1994). Summary and evaluation of the testing sponsored by the Library of Congress of books deacidified by the FMC, Akzo and Wei To mass deacidification. Restaurator, 15(2), 109-127.

Brown, K.E., Patkus, B.L., (1999). «Collections Security: Planning and Prevention for Libraries and Archives», in: Preservation of Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition, Section 3: Emergency Management, Leaflet 12

Buchmann, W., (1998). Preservation: buildings and equipment. Janus, 3, 49-62.

Calmes, A., Schofer, R., & Eberhardt, K. R., (1988), Theory and practice of paper preservation for archives. Restaurator, 9, 96-111.

Child, M., (1999). Preservation Assessment and Planning. Section 1: Planning and Prioritizing, Leaflet 2. Preservation of Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition. Retrieved from www.nedcc.org

Creasy, H., (1993). A survey in a day: Cost-effective surveys of museum collections in Scotland. The Paper Conservator, 17, 33-38

Cunha, G. M., (1987). Mass deacidification for libraries. Library Technology Reports, 23(3), 358-472.

Den Teuling, A., (1996). Environmental conditions for the storage of archival materials. Janus, 2, 110-118.

Evans, B., (1993). The Duke Humfrey's Library project: Using an item-by-item survey to develop a conservation programme. The Paper Conservator, 17, 39-44.

Feller, R. L., (1994). Accelerated Aging: Photochemical and Thermal Aspects. Marina del Rey: The Getty Conservation Institute.

Fellers, C., Iversen, T., Lindstrom, T., Nilsson, T., Rigdahl, M., (1989). «Ageing/Degradation of Paper, a Literature Survey», FoU-projektet for pappers konservering, Report No. 1 E, Stockholm.

Forsskahl, I., (2000). Light aging test method development: ASTM research program into the effect of aging on printing and writing papers: Finnish Pulp & Paper Research Institute (KCL).

Gkinni, Z., (2014). A preservation policy maturity model: a practical tool for Greek libraries and archives. Journal of the Institute of Conservation, 37(1), 55-64. doi: 10.1080/19455224.2013.873729

Glaser, M. T., (1999). Conservation Treatments for Works of Art and Unbound Artifacts on paper. Preservation of Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition, Section 6: Conservation Procedures, Leaflet 7. Retrieved from www.nedcc.org

Havermans, J. B. G. A., &Dufour, J. (1997). Photo oxidation of paper documents - A literature review. Restaurator, 18(3), 103-114.

Kresh, D. N., (1996). Preservation program management at the Library of Congress: A case study. The Paper Conservator, 20, 27-32.

Kufa, J.C., (1998). «Preservation Education: A Pilot Project on Preservation Awareness Training in the University of Botswana Library», Restaurator 19 (2) 108-114.

Middleton, B. C., (1977). Book preservation for the librarian. In J. C. Williams (Ed.), Preservation of paper and textiles of historic and artistic value (pp. 3-23). Washington, DC: American Chemical Society.

Nicholson, C., (1992). «What Exhibits Can Do to Your Collection», Restaurator 13 (3) 95-113.

Nyuksha, Y.P., (1994). «Conservation of Library Material: A concept Based on Experience in the Former Soviet Union», Restaurator 15 (1), p. 55-63.

Ogden, S., (1999a). «Storage Furniture: A Brief Review of Current Options», in: Preservation of Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition, Section 4: Storage and Handling, Leaflet 2.

Ogden, S., (1999a). Considerations for Prioritizing. Preservation of Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition, Section 1: Planning and Prioritizing, Leaflet 4. Retrieved from www.nedcc.org

Ogden, S., (1999b). «Protection from Loss: Water and Fire Damage, Biological Agents, Theft, and Vandalism», in: Preservation of Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition, Section 3: Emergency Management, Leaflet 1.

Ogden, S., (1999b). «Storage Methods and Handling Practices», in: Preservation of Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition, Section 4: Storage and Handling, Leaflet 1.

Ogden, S., (1999b). The Needs Assessment Survey. Preservation of Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition, Section 1: Planning and Prioritizing, Leaflet 3. Retrieved from www.nedcc.org

Owen, J. M., (2007), The Digitization of Information Resources The Scientific Article in the Age of Digitization (pp. 93-130): Springer.

Patkus, B. L., (1999c). Protection From Light Damage, Section 2: The Environment, Leaflet 4. Preservation of Library and Archival Materials: A Manual, Northeast Document Conservation Center, Third Edition. Retrieved from www.nedcc.org

Pilette, R., (2007). Book Conservation within Library Preservation. Collection Management, 31(1-2), 213-225. doi: 10.1300/J105v31n01_16

Porck, H. J., (1996). Mass Deacidification. An Update on Possibilities and Limitations. Washington, DC. European Commission on Preservation and Access, Amsterdam; Commission on Preservation and Access.

Richmond, A., (1993). Introduction. The Paper Conservator, 17, 32.

Stehkamper, H., (1988). «"Natural" Air Conditioning of Stacks», Restaurator 9, 163-177

Swift, K., (1993). The Oxford preservation survey. Part one: The main survey. The Paper Conservator, 17, 4552.

Thompson, J. C., (1988). Mass deacidification: Thoughts on the Cunha report. Restaurator, 9, 147-162.

Zimmmerman, C., (1991). Bibliography on Mass Deacidification. Washington, D.C.: Library of Congress. Preservation Office. Retrieved From http://cool.conservationus.org/byauth/zimmerman/massdeac.html