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Preserving Artifacts: A Survey and Research into the Struggle of Smaller Institutions' Need for Budgeting

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Preserving Artifacts:
A Survey and Research into the Struggle of Smaller Institutions' Need for Budgeting

by

Emily Busch

An Abstract of a Thesis
in
Museum Studies

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Master of Arts

December 2013

State University of New York
Buffalo State
Department of History and Social Studies Education

Abstract of Thesis

This paper will discuss the budgeting and preservation problems that are prevalent in institutions specializing in historical collections. The sizes of the institutions that will be reviewed include small and medium-sized specialized museums along with local and regional historical societies, based on research and a survey sent to these kinds of institutions. Three types of artifacts that are commonly found in these institutions – paper, photographs, and textiles- will be examined to get a clear understanding of their preservation problems and needs. This is followed by reviews of proper storage techniques for artifacts and descriptions where the institutions can acquire the preservation materials. Survey results are presented on how institutions are using them.

This thesis also reviews ways in which institutions may develop their budget and procure the funds needed to acquire the necessary materials to preserve their artifacts and their buildings. This section includes information gathered from the survey including the different ways the institutions acquire extra funding; along with the ways they use their funding. Finally, I examine real-life examples of how libraries, archives, and museums preserve their material with modern-day technology despite limited money and time.

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Chapter 1: Introduction

Museums, historical societies, and archives hold treasures that require preservation to stay in the best possible shape for the future. To display the many and distinct cultures along with their history and items, museums and other institutions were established. These artifacts tell the stories and histories of each culture to millions of patrons that go through the institutions' doors. These patrons see and enjoy the public side of museums, historical societies, and archives: the beautiful and historic artifacts that are in displayable condition for viewing. These repositories house the rest of their collections in specialized storage rooms and vaults. The housing of the artifacts in these specialized locations helps to preserve them. Unfortunately, institutions are underfunded in regard to preserving and housing their artifacts and consequently find it difficult to properly preserve all of the artifacts. Artifact preservation can be found in many instances in the survey of historical agencies and which will be discussed throughout the rest of this paper. These artifacts can range from paper documents and books to highly-prized photographs and paintings to textiles. Every artifact has unique physical characteristics that need to be individually addressed correctly to ensure that deterioration does not take place.

The major issue these institutions face is allocating limited funding between preservation of artifacts, refreshing their exhibits to keep patrons visiting and donating, providing the salaries of staff, and the building maintenance costs. Annually, many institutional leaders have to prioritize spending and postpone other spending for the future. Other administrators seek to develop new fundraising techniques to continue the preservation of artifacts. This paper will be investigating how some institutions -- small

museums, historical societies, and archives -- deal with preserving their artifacts in storage when their annual budget may not be adequate, often not more than a few thousand dollars per year.

A survey was decided upon to retrieve this information. A survey is the fastest, easiest, and most complete way to obtain evidence needed from a wide range of institutions. For an institution to be part of this investigation, it has to fit criteria that I had devised. Museums had to be (1) small or medium in size, (2) have less than 20 full time a full-time, part-time, and volunteers' staff, (3) not be part of the National Park Service, (4) not be publicly known throughout the world, and (5) not run by a local history organization. Archives could not be government-owned or operated. However, presidential libraries and university-operated archives were acceptable. The historical societies chosen were created by members of the town or community and represent their towns' history with a museum. They had to be in a population center with less than 100,000 people and have a small (fewer than 10 person) staff. The reasoning for selecting this criterion is that institutions in the bigger, well-known cities can receive more visitors and therefore receive more money, by donation or admission, than the smaller town and community based historical societies and museums.

The survey was sent to 50 museums, archives, and regional and local historical societies throughout the northeast and mid-Atlantic, requesting feedback on how these kinds of institutions manage, on their small budgets, to have exhibits while still outlaying funds to preserve their artifacts. They were sent by email to the museum director, collections manager, or curator. As leaders of these institutions, they have to deal with their budgets on a daily basis and therefore have well-informed answers. An 18%

response rate was received. (The full survey questions can be seen in Appendix A, along with responses from the individual institutions in Appendix B).

Once all of the responses were received, they were identified with a letter to keep their anonymity. The museums are referred to as Museum A, Museum B, Museum C, Museum D, and Museum E. Historical Societies are referred to as Historical Society A, Historical Society B, and Historical Society C. Unfortunately, only one archives filled out the survey, and that response will still be used along with additional information obtained from the literature research pertaining to archives.

Chapter 2: Literature Review

Preservation takes a lot of time and care, both of which cost money. The preservation methods of artifacts are specific to each type of artifact, even within the same collection. Therefore, museums first must understand how each specific artifact will deteriorate before they can acquire the materials necessary to preserve them.

There are many places to find information about deterioration problems of any artifacts, including the Smithsonian Institution, the Metropolitan Museum of Art, and the J. Paul Getty Museum. As one of the world's renowned museums, the Smithsonian, with its vast array of artifacts, has acquired the expertise needed for the preservation of many kinds of artifacts across the whole museum field. A section of their website is dedicated to museum conservation and has detailed information on artifact care, current artifact research, and even a link to consult with one of the conservators at the Smithsonian. All of this information is easily accessible and informative to those needing an understanding of artifact care, storage, and preservation.¹

The J. Paul Getty Museum in Los Angeles has a conservation institute that is world-renowned for their conservation efforts along with developing new methods of conservation. The Getty Conservation Institute website is a source of information for conservation and includes a link to free publications that range from conservation case studies to material on air pollution in museums, along with the institution's current conservation projects. Specific information on artifact care or preservation can be searched in their search engine, revealing multitudes of information both in text and

¹ Smithsonian: Seriously Amazing, "Researchers," Smithsonian Institution, <http://www.si.edu/Researchers> (accessed January 2013).

video format.² For example, searching “preservation of paper” brings up 475 results including books to purchase and free articles pertaining to paper and paper related artifacts. Between the Smithsonian and J. Paul Getty Conservation Institute websites, museum personnel looking for preservation information about artifacts will find essential information.

A book that gives pertinent information on pollutants that are found in museum and archival environments is *Pollutants in the Museum Environment: Practical Strategies for Problem Solving in Design Exhibition and Storage* by Pamela B. Hatchfield. She explains in detail the causes of deterioration for the majority of artifacts that are held by museums along with how these pollutants migrate throughout the museum. The final part of her book is about materials that can be used to help protect artifacts from the harmful pollutants that she described. The detailed information about the pollutants can be difficult to understand due to Hatchfield’s use of chemistry formulas and technical terms, but having a basic chemistry understanding was enough to comprehend the information. This is a good reference for getting a deeper and more scientific understanding about deterioration of artifacts and their causes.³

A book or article that emphasizes specific artifacts is one way to get detailed information about the preservation needed to save these artifacts. One such book, written by Bertrand Lavédrine, Director of the Centre de Recherche sur la Conservation des Collections, focuses on photographic and film artifacts, and is called *Photographs of*

² The J. Paul Getty Trust, “The Getty Conservation Institute,” J. Paul Getty Museum, <http://www.getty.edu/conservation/> (accessed August 23, 2013).

³ Pamela B. Hatchfield, *Pollutants in the Museum Environment: Practical Strategies for Problem Solving in Design, Exhibitions and Storage* (London: Archetype Publications Ltd, 2002).

the Past: Process and Preservation.⁴ Lavédrine describes the characteristics of the different kinds of photographs or films, the deterioration problems associated with each, and ways to preserve them by text and an image. This book is a great starting point for institutions in analyzing their photographic artifacts. However, it does not explain how to acquire preservation materials or storage materials. This omission can be a drawback for those just beginning their preservation and who do not know where to look for such materials.

Another Lavédrine text, *A Guide to the Preventive Conservation of Photograph Collections*, is the place to find out the information in acquiring preservation materials or storage materials, along with the proper mounting and exhibition techniques. He goes in depth on preservation issues specific to photographs such as deterioration, but also explains how to protect photographs due to their unique chemical compounds and how to properly exhibit them. Throughout the book are helpful tables that take the information given in the text and break it down for an easier read to compare/contrast or to supplement information. Overall, both of Lavédrine's books help those with photograph collections discover what kind of photographs they have, how to protect them, where to acquire the material for preservation, and how to properly display the photographs to prevent deterioration.⁵

Photographs are not the only artifacts stored in institutions. Paper artifacts such as letters, diaries, maps, and drawings are also found and need to be preserved as well.

⁴ Bertrand Lavédrine, *Photographs of the Past: Process & Preservation* (Los Angeles: The Getty Conservation Institute, 2009).

⁵ Bertrand Lavedrine, *A Guide to the Preventive conservation of Photograph Collections* (Los Angeles: The Getty Conservation Institute, 2003).

Paper artifacts can make up the majority of a collection, especially if the institution is an archive. *Preserving Local Writers, Genealogy, Photographs, Newspapers, and Related Materials*, edited by Carol Smallwood and Elaine Williams, offers an abundant source of information regarding these types of paper collections.⁶ The book has different sections relating to paper documents that would be found in many institutions. Within each section are multiple articles relating to different aspects of these documents, such as “how to partner with other local genealogical societies in the area” or “how to keeping scrapbooks secure, but also available to patrons.” These two articles are only some of many found in the different sections. The book as a whole might be useful for all institutions. An individual section could change the way in which certain paper documents are handled and preserved institutionally.

Paper documents and photographs are not the only artifacts found in historical societies, museums, and archives. Textiles can make up a good part of a collection. An excellent book relating to the preservation of textiles is *Textile Conservation: Advances in Practice*, edited by Frances Lennard and Patricia Ewer. Their book explains the hurdles that the preservation community has faced in the past 20 years and the continuing obstacles that still plague them. The information given is presented in sections that look at a specific aspect of textile preservation including “Treatment Options: What are we Conserving,” “Remedial Conservation,” and “Future Needs and Influences.” At the beginning of each section the editors relate the latest information in the field and the techniques that are being used and/or modified depending on new technology and information. Then individual case studies are presented in which the

⁶ Carol Smallwood and Elaine Williams, ed., *Preserving: Local Writers, Genealogy, Photographs, Newspapers, and Related Material* (Plymouth, United Kingdom: Scarecrow Press Inc, 2012).

conservation authors reveal their project along with the problems and the solutions needed to finish. One such case study was written by Dinah Eastop and Bernice Morris, conservators who worked with the Philadelphia Museum of Art in the treatment and re-exhibition of Grace Kelly's wedding dress for her 50th wedding anniversary. This textile book has not only the latest information that has come about in the preservation of textiles, but useful information regarding the problems textile conservators themselves have had to face. For smaller institutions, this information can help with their decision-making in their own textile preservation efforts.⁷

In general, preserving and conserving the artifacts can take a lot of time both in actually preserving the artifact and in researching which technique is the best for that artifact or artifacts. Jennifer E. Hain article "A Brief Look at Recent Developments in the Preservation and Conservation of Special Collections," gives some of these preservation and conservations techniques all in one place. Her article does not reference all of the choices institutions have, but the ones that are most often used. Some of the preservation choices that she looks at are single artifact options that include paper-splitting, leaf casting, and deacidification. Hain also looks at environmental control options that are available for institutions, many of which are widely used throughout museums and archives. Though her article is brief it is a great starting point for many institutions that are starting to look at preservation and conservation methods to use on their collections.⁸

⁷ Frances Lennard and Patricia Ewer, ed., *Textile Conservation: Advances in Practice* (Oxford: Elsevier Ltd, 2010).

⁸ Jennifer E. Hain, "A Brief Look at recent Developments in the Preservation and Conservation of Special Collections," *Library Trends* 52, no.1 (Summer 2003): 122-117.

The downside to acquiring materials to preserve artifacts is the financial costs brought upon the museums, historical societies, and archives. Smaller institutions that do not have a large budget may find it hard to fund the acquisition of large amounts of these materials. They need ways in which to generate funding to acquire the appropriate preservation materials while still running properly for the public. Thankfully, there are many different financial strategies to receive this extra funding. Many authors and museum personnel have written helpful books and articles to explain them.

Some of these strategies have been reviewed by Carole Rosenstein, an arts management professor at George Mason University. In her article “When is a museum a public museum? Considerations from the point of view of public finance,” Rosenstein describes the diverse methods in which different institutions receive their income. She explains funding options from different government agencies, such as the National Endowment for the Arts, the National Science Foundation, and congressional earmarks. She also states that government support can be disproportionate among non-profit museums. This is seen in her multiple tables relating to percentage and dollar amounts received from private support, earned support, investments, and government support.⁹ This journal article would have been more helpful for smaller and medium-sized institutions if the author had broken down the museum types into size-related museums, but this kind of information may not have been available to her. In the end the article gives good background and insight into how government funds are received and delivered to museums across all disciplines.

⁹ Carole Rosenstein, “When is a museum a public museum? Considerations from the point of view of public finance,” *International Journal of Cultural Policy*, no. 4 (November 2010): 449-465.

When government funding is not available, museums -- particularly smaller ones -- need to think outside the box. Theresa McNichol's article, "Creative marketing strategies in small museums: up close and innovative," describes different ways that smaller and medium-sized museums can increase funding. McNichol reviews how the wine industry marketed itself to a wider range of people, and suggests that museums can use the same method. The wine industry reinvented itself by switching their marketing focus from the wine itself to the wine-making process: how the grapes are cultivated, how they are carefully chosen for harvest, and how the winemakers delicately make the wine. The winemakers found that once they changed their marketing approach, the public became more enthusiastic about drinking wine, and wine sales increased. The author suggests that small and medium-sized museums can do the same by changing their mindset on how they think and see their museum and how they advertise to the public. This will in turn change the atmosphere of the museum and change the mentality of the patrons. This change in mindset helped the Fairfield County Museum in Winnsboro, South Carolina, make the Smithsonian traveling exhibit "Barn Again! Celebrating an American Icon" a huge hit throughout the in county by getting the word out through presentations and emails to increase community involvement, something they were not good at.¹⁰ The "Barn Again! Celebrating an American Icon" traveling exhibition was created to explore the role that barns had in the past, while also showcasing the issues that are shaping their future.¹¹ Once the

¹⁰ Theresa McNichol, "Creative marketing strategies in small museums: up close and innovative," *International Journal of Nonprofit & Voluntary Sector Marketing*, no 10 (November 2005): 239-247.

¹¹ Lisa Thompson, *Barn Again! Celebrating an American Icon Teachers Guide* (Washington D.C: Smithsonian Institution, 2003).

museum gets the patrons' awareness changed, it can move forward in its development of ideas in operation and raising money.

However, these new ways in which museums can change their thinking can be difficult during economic downturns. During economic downturns government funding for museums is often reduced. This can be seen throughout museums in the United States as well as countries with government operated museums, like England. English museums had budget cuts of 30% in 2010 and a further 1% and 2% budget cuts over the next two years.¹² These English institutions need to find ways to replace the lost government funding and also reduce their spending to match decreased revenue.

Stephanie Lessans Gellar and Lester M. Salamon's journal article, "Museums and Other Nonprofits in the Current Recession: A Story of Resilience, Innovation, and Survival," describes ways in which museums of all sizes can tighten their belts to survive through economic downturns. The authors received their information through a survey that was sent out to different nonprofit organizations, focusing mainly on museums, and asking them how and in what ways they are weathering the recession. Gellar and Salamon received responses from 363 organizations out of 1,400 or a response rate of 26%. Gellar and Salamon's article analyzed the many different ways in which the responding museums -- both large and small -- are surviving by fundraising, belt-tightening, and entrepreneurial strategies. These strategies include postponing new hires, organizing special events and fundraisers, and relying more on volunteers. These are only a few choices that the respondents found that will help other museums through the current recession and will continue to change the way they run their organizations. One

¹² Mark Brown, "Arts organizations and museums face further funding cuts of £11.6m: Cuts to Arts Council England budget will be passed straight onto the 696 bodies it funds," *The Guardian*, December 10, 2012.

executive quoted in the survey said, “We have always struggled financially, but this year, we are struggling even more. This year, we are in survival mode.”¹³

Everyone needs to plan for economic downturns, and museums are no exception. If they do not, accumulating financial problems may close their institution. Planning for an economic downturn with a “rainy day fund” could be anything from investments to a savings account to endowments. Jackson McQuigg’s article, “Museum life support: endowment,” describes how a rainy day fund can save and also rejuvenate a dying institution. His example of a large museum’s experience was Colonial Williamsburg. Colonial Williamsburg saw a significant loss of revenue with the loss of patrons, but due to their endowment of \$750 million they survived the downturn and were able to regain their patrons. For smaller museums, the example of the Colorado Railroad Museum in Golden, CO, was reviewed. The museum obtained a large endowment from a single individual which has helped them with important operating funds. In addition, the museum aggressively increased their membership and donations. This example can give hope to other financially unstable institutions that there is light at the end of the dark budget tunnel. Museums just have to work for it, and it will breathe hope into their institutions.¹⁴

A new era is well underway for technology use across all sections of the arts and culture world including museums and archives. The majority of institutions have used computers to enter artifact information into databases for internal use and for public access. Today, they are transferring this information using newer, more powerful

¹³ Stephanie Lessans Gellar and Lester M. Salamon, “Museums and Other Nonprofits in the Current Recession A Story of Resilience, Innovation, and Survival,” *Journal of Museum Education*, no. 35 (Spring 2010): 129-140.

¹⁴ Jackson McQuigg, “Museum life support: endowment,” *Trains*, no. 68 (March 2008): 56-57.

versions of software. Kwong Borng and Jason Kucsma realized this change and have combined numerous articles pertaining to this movement in their book *Digitization in the Real World: Lessons Learned from the Small and Medium-Sized Digitization Projects*. These articles cover a wide range of technological issues pertaining to digitization. Digitization helps with the preservation of paper-based artifacts and institutional records by having them being scanned or entered manually into a computer platform, making them available to researchers while the original is properly preserved and stored. Preservation refers to actions taken to keep two and three dimensional artifacts, such as clothing, paper, and pottery from deteriorating. Digitization technology changes frequently, and Borng and Kucsma's research shows that digitization can be done in a different ways depending on what materials and which institutions are using it.¹⁵

There is a difficult decision with digital technology for museums, historical societies, and archives: how to decide whether to spend their limited funds on digitizing artifacts for easier public access, or preserve the artifacts in their collection. This means that institutions need to decide if digitization is the best course of action for them and their collections. The article "Current and Emerging Challenges for the Future of Library and Archival Preservation," by Thomas H. Teper, can be helpful in this decision. It is geared towards library and archives, but museums and historical societies can adopt some of the methods described into their own practices. This article describes eight different challenges that preservation managers have faced and will most likely continue to face in the next several years. These challenges include how to preserve digital information, the permanence of digital materials, and preserving printed collections such

¹⁵ Kwong Borng & Jason Kucsma, *Digitization in the Real World: Lessons /learned From Small and Medium-Sized Digitization Projects* (New York: Metropolitan New York Library Council, 2010).

as books and journals. The major challenges with library and archival preservation according to Teper is the continuing rise in costs to preserve printed materials (books, journals, newspapers), while also acquiring the expensive technology needed to digitize and house the newly scanned information. Deciding which printed materials to preserve and which not to is a cost decision that Teper acknowledges is difficult. Museums may choose to de-accession objects that do not relate fully to their mission statement and spend the money that would be needed to preserve them on preserving objects that are vital to their mission statement. The majority of the paper is about the digital age and how many students and faculty are using online articles, not printed materials, in libraries. It describes the struggle that libraries and archives have with determining which technology is needed to preserve this digital information.¹⁶

Finally, a recent publication called *Archives for the Lay Person: A Guide to Managing Cultural Collections* by Lois Hamill ties modern technology together with current museum preservation practices and the current economic downturn. This book is geared more towards archival institutions or museum libraries, but some of the information given can be used for other types of collections. Such information includes tutorials on how to put artifacts and artifact information into the museum database software called PastPerfect 5. PastPerfect is a computer program made for museums, historical societies, and archives to input and store collections' records and contact records. This program is useful by having all of the information needed for all artifacts in one location, including condition reports (reports stating how the artifacts look) and

¹⁶ Thomas H. Teper, "Current and Emerging Challenges for the Future of Library and Archival Preservation," *Library Resources & Technical Services*, no. 49 (January 2005): 32-39.

conservation reports (reports stating what treatments the artifacts have gone through).¹⁷ Hamill covers all aspects of the collection, including storage environment, exhibits, security, and organization. In each of these sections she gives the latest information available including environmental conditions and proper documentation of artifact history and locations. Overall Hamill's book is the newest text that covers modern technology while giving the latest practices used in archival and museum institutions.¹⁸

Museum Resources:

Many different companies and websites are dedicated to artifact preservation and supply affordable archival quality materials to museums and the public. These can be found with a simple search online, in the phone book, or a by contacting colleagues at other organizations. Gaylord Brothers is one company that has both a website and hard-copy catalog in which the proper preservation and storage materials may be researched, viewed, and acquired. To make research and acquisition even easier, they have representatives that can be consulted regarding which materials are the best for certain artifacts and collections.¹⁹ This is a feature that brings benefits not only to museum institutions, but also to Gaylord Brothers, who may acquire repeat customers.

Gaylord Brothers is not the only company that sells preservation and storage. Archivart, University Products, and Conservation Resources International, LLC are

¹⁷ Past Perfect Museum Software, "PastPerfect Museum Software Version 5.0," PastPerfect Software, Inc, <http://www.museumsoftware.com/products.html> (accessed August 23, 2013).

¹⁸ Lois Hamill, *Archives for the Lay Person: A Guide to Managing Cultural Collections* (New York: AltaMira Press, 2013).

¹⁹ Gaylord, "Gaylord, Your Trusted Source," Gaylord Brothers, <http://www.gaylord.com/customerservice.asp?> (accessed December 2012).

three other companies that supply materials to museums and other organizations looking to properly preserve and store their materials. Archivart has an easy website to negotiate to find the products that are needed. Each product has a description page along with a page telling the prices for each size and quantity.²⁰ University Products covers a wide range of products including materials for preservation and storage along with furniture and proper cleaning supplies. This company is a one stop supplier for all the needs of the museum or archives.²¹ Conservation Resources International, LLC is another company that sells preservation and storage materials and similar to University Products they sell other materials as well. These materials include books that focus on a specific topic such as bookbinding and conservation tools and equipment.²²

All three of these companies have a website and an online catalogue to look at and order from. They also have ordering via a phone. This is great for those who have any questions about the products, prices, or shipping as the representatives can answer them. Each company has their own materials and products all of which are helpful for those in the museum and archival field.

Support also comes from organizations that focus on the museum field. The American Alliance of Museum (AAM) is one such organization. They do this through advocacy, education, career development, and resources. Their resources include a bimonthly magazine entitled "Museum," online learning and programs, and bookstore in

²⁰ Archivart, "Archivart: Archival Products for Conservation, Exhibition and Storage," Archivart, <http://www.archivart.com/> (accessed December 2012).

²¹ University Products, "University Products: The Archival Company," University Products, Inc, www.universityproducts.com (accessed December 2012).

²² Conservation Resource International, "Conservation Resources International LLC: Archives, Library & Museum Preservation," Conservation Resources International, LLC, www.conservationresources.com (accessed December 2012).

which books can be searched by categories. Organizations can join AAM as a member. This membership includes discounts on books, webinars, and discount entry into other membership organizations. All of these things and more can be accessed through their website.²³

American Association of State and Local History (AASLH) is another such organization that supports the museum in a multitude of ways. This association is dedicated to state and local history and to those institutions that have small budgets and limited staff resources. Their resources include an online learning center, technical leaflets that can be bought online, a bookstore, and an online job posting for employers and for those looking. AASLH also has a membership that can be acquired for organizations and for individuals. This membership includes a discount on books, conferences, and discounted entry into other institutions.²⁴

²³ American Alliance of Museums, "About Us," American Alliance of Museums, <http://www.aam-us.org/about-us> (accessed November, 13, 2013).

²⁴ AASLH: American Association for State and Local History, "Your Home for State and Local History," AASLH, <http://www.aaslh.org/leaflets.htm> (accessed November 13, 2013).

Chapter 3: Survey Overview

As stated in the introduction, a survey was sent out to 50 different museums, historical societies, and archives, as follows: 24 were sent to museums, 15 sent to historical societies, and 11 were sent to archives. The targeted institutions were based on the institutions' mission statements along with criteria for each institution. An overview of the criteria's is as follows: museums had to be (1) small or medium size, (2) maintain less than 20 full-time, part-time and volunteers staff, (3) not be part of the National Park Services, (4) not be publicly known worldwide, and (5) not run by a local history organization. Historical societies had to be created by members of the town or community that represent their history with some form of museum, employ fewer than 10 people on staff, and with a population center less than 100,000 people. Finally, archives could not be government-owned or operated. However, those that are part of a university or are within presidential libraries were acceptable. In all, five museums, three historical societies, and two archives responded. One of the archives believed they were too large to participate in the survey and in return gave email addresses for other archives in their area. None of these provided feedback, though.

The nine institutions that responded maintain collections that range from film and photograph to pottery and women's dresses dating from the 19th century, along with vast amounts of paper artifacts like diaries, maps, and written family histories. The majority stated that the artifacts in their collections were given to their museum, historical society, or archives through donations, with the occasional purchase to fill in gaps in the collections.

Housing artifacts is a key part of the function of museums, historical societies, and archives, so that the pieces may be put on display or used for research. For this to be done, proper storage, preservation techniques, and monitoring of storage facilities is essential. The results of the survey show that the majority of the respondents use some form of preservation materials while also following preservation guidelines for their collections. They also use temperature and humidity monitoring equipment in their collection storage areas or vaults. This equipment ranges from basic monitoring tools to more complex ones.

Finally, the common thread that helps these institutions run is good control of spending and funding. The three types of cultural institutions being surveyed receive their funding from multiple sources including governments, grants, entrance fees, endowments, and memberships. The majority of the responding institutions run on less than \$500,000 dollars a year with only two institutions stating that their annual budget is over a million dollars. All of them stated that they receive funding from local, state, or federal government. The funding is then used for a variety of things, with the majority of the funding for the salaries of the institutions' personnel. The rest is then allocated among educational programs, new displays, building maintenance, and preservation of materials.

Having materials and artifacts makes these institutions valuable to their public, but the majority of the respondents use less than 5% of their budget to preserve their artifacts. There can be many reasons for this, including the fact that many artifacts have already had some form of preservation applied to them or that the institutions are correctly processing items in their collection, which takes time. To help supplement the

funding received from the government many institutions apply for grants for preservation. Seven institutions indicated that they have applied for and received some form of grants from different federal and state agencies, or private foundations, to be used for their collections preservation.

In the end, these survey responses were helpful and insightful for understanding the challenges to preservation practice in smaller budgeted institutions. The information that they shared was diverse in relation to their financial standings and their collection needs, but similar in their commitment to helping their collections survive for the future.

Chapter 4: Materials and the Problems They Face

Museums, historical societies, and archives across the board have a wide range of materials in their collections that need to be preserved and kept in the best possible storage conditions. This takes a vast amount of time and money and can be difficult for many museums. The high cost of these efforts can cause some institutions with limited funds to de-accession certain artifacts, especially those not significant to their mission, in order to save the rest.²⁵ As a result, the artifacts that are commonly found in institutions will be explained to get a better understanding of why so much time and money goes into their preservation and why some artifacts are de-accessioned.

The collections housed in the different organizations differ based on the type of institution: museums, historical societies, or archives. The majority of collections that are housed in archival institutions are paper and photographs with pieces of clothing, paintings, and other 3-D artifacts, with the majority of their collection coming from the organization they are representing. A historical society collection would typically consist of a whole range of materials including paper, photographs, textiles, household goods, farm and factory tools, store materials, and old school supplies. All of these artifacts help tell the history of the town or county that the historical society is representing. Finally, medium and small museums can house a multitude of different collections depending on if the museum is displaying only a specific area of interest or a multitude of interests. Examples of a small to medium specialized museum's collections are a maritime museum, a war museum, or a manuscript museum. They would contain artifacts only pertaining to those fields as per their specific missions.

²⁵ Teper, "Current and Emerging Challenges for the Future of Library and Archival Preservation," 34.

The wide range of materials housed at museums, historical societies, and archives can cause a multitude of preservation problems for the institutions. One such problem, is finding the necessary funding to buy the specialized materials in order to preserve them in-house. This cost is high. Therefore, institutions which have small budgets have no other options, but to find ways in which to acquire the necessary materials for preservation. The following section describes the technical aspects, problems, and costs of preserving the most common artifacts which are paper, photographs and textiles.

Paper:

The type of material or artifact which is common in all three types of institutions is paper. Modern paper is manufactured through the separation of natural fibers that are then reformed back together.²⁶ This natural fiber is made up of cellulose, a white substance that is hygroscopic (able to absorb and retain moisture), is insoluble in most solvents, and is resistant to most chemicals.²⁷ It is found naturally in wood. Due to these properties paper manufacturers have found wood to be the easiest and cheapest to produce.²⁸ The ground wood in paper production is called pulp, and the majority of it is called kraft pulp also known as sulfate pulp; is used in all grades of paper.²⁹ Besides separating the fibers from each other, paper manufacturers put in other materials. These are called additives that include bleaching agents, bonding agents,

²⁶ Teper, 34.

²⁷ Merriam-Webster Dictionary, "Hygroscopic," An encyclopedia Britannica Company, <http://www.merriam-webster.com/dictionary/hygroscopic>, (accessed June 29,2013).

²⁸ B.E. Faye, "Towards a Collaborative National Preservation Program," in *Preservation of Library & Archival Materials*, ed. APPA (United States: United Book Press, 1991), 7.

²⁹ National Research Council, *Preservation of Historical Records* (Washington DC: National Academy Press, 1986), 34.

binder materials, inorganic materials used in varying degrees for pigments, fillers, and sizing agents.³⁰

Paper made prior to the mid-1800s was stable as paper manufacturers did not include additives. The majority of paper was made out of rags and linen which proved to be more chemically stable.³¹ The manufacturing techniques changed in the mid-1800's, in response to the demand for inexpensive paper. The change in the manufacturing process included the development of wood-based paper with additives. The result was a paper product that had a strong residue of acidic chemicals that were either intrinsic to wood and/or used in the maceration process. The maceration process is when the pulp is wetted down; the additives incorporated, and then pushed through a sleeve. The paper created became known as "acid paper." It was discovered that this type of paper self-destructs over time due to the cellulose chains oxidizing. This oxidization process makes the paper become weak and brittle.

The fragility of this paper was revealed in Florence, Italy when a flood struck in November 1966, inundating the city within hours. The Bibliotheca Nazionale, one of the national libraries of Italy, suffered massive water damage to over 1,300,000 items. The Palatine and Magiabechi collections, which had massive quantities of newspapers, maps, and posters were severely damaged or destroyed by the flood waters.³² The archives of the Opera del Duomo and the State Archives (Archivio di Stato) also suffered damage.³³ This was the event that prompted the international communities of

³⁰ Faye, 7.

³¹ Susan Kinsella, "The History of Paper," Conservatree, <http://www.conservatree.org/learn/Papermaking/History.shtml> (accessed July 1, 2013).

³² Paul Salsini, "A Tuscan Trilogy," Paul Salsini, <http://www.atuscantrilogy.com/flood.php> (accessed July 1, 2013).

³³ Ibid.

preservationists and conservationists to jump-start the modern preservation of papers, documents, and other two-dimensional materials.

Types of Damage:

Preservationists and conservationists look at different types of damages that paper undergoes. This damage was put into two different categories: physical and chemical. Physical damage can be seen by the naked eye. This damage includes torn pages, bindings which break away from the text pages, bent corners, and insect damage.³⁴ Insect damage is seen most often to papers and/or books stored in a traditional public library. Another cause of paper damage within libraries is food particles which occur when patrons eat over books and papers. Many libraries have made attempts to keep food outside and away from materials, but patrons still bring in food and drinks.³⁵ A library open to the public could be found throughout the world as a city, town or university organization that houses a collection of printed materials for the public's use.³⁶ These libraries not only hold books, but in most instances, old newspapers and the city or town archives. The combination of high patron traffic, along with them leaving traces of food and drinks; as well as insect-edible paper creates a higher rate of insect movement inside and outside of the building. Food, which people thoughtlessly bring in and the paper itself are not the only things to blame for attracting insects. Fillers and glues that are used in the binding of books also attract them. The

³⁴ Paul N. Banks and Carolyn L. Harris, "Introduction: Central Issues in Preservation," in *Preservation of Library and Archival Materials*, ed. APPA (United States: United Book Press, 1991), viii.

³⁵ Ibid, xiii.

³⁶ Certified Public Library Administrator Program, "Definition of a Public Library," ALA-APA, <http://ala-apa.org/certification/application/definition-of-a-public-library/> (accessed August 20, 2013).

insects which are most commonly found feasting on these old papers and books are silverfish and cockroaches.³⁷

Chemical damage is the other form of degradation that occurs to papers and books. Chemical damage refers to changes to the paper at the molecular level. This type of damage happens when different environmental agents such as temperature, humidity, light, and air pollutants react with the cellulose and additives in the paper. Once the chemical reactions have started there is no way to reverse or stop them. The only thing that can be done is to slow them down.

The environmental agents can be restricted by human intervention. Humidity is one of the environmental agents. Its damage can be done when it is either too low or too high. Archival preservationists measure humidity and its destructive power in terms of water content at a molecular level. The documented evidence shows, that when water reaches 5%-7% on the cellulose fibers, it decreases the physical properties of paper, such as tear resistance. Paper rapidly deteriorates due to the competition between the water molecules and the hydroxyls of cellulose for the hydrogen bonds.³⁸ When humidity is too low, it will cause the paper to lose moisture and will eventually make the paper brittle. When the humidity is too high, the paper will lose strength due to the fibers absorbing too much water and falling apart. High humidity also causes the growth of mold, particularly when it stays above 60% for long periods of time.³⁹

³⁷ Banks, xiii.

³⁸ National Research Council, 38.

³⁹ Donald G Kelsey, "Environmental Control in Libraries: Managing Existing Spaces, in *Preservation of Library and Archival Materials*, ed. APPA (United States: United Book Press, 1991) 22.

Light is another environmental factor that damages paper artifacts. All light is damaging to paper. The length of time paper has been exposed to light will determine the amount of damage it receives. The majority of the damage is caused by reaction of light with the bleaching agents in the paper. This can be seen easily when a newspaper has been left out in the sun for too long and the paper transitions to a light, yellow color. The worst kind of light is ultraviolet (UV) light, for it has the highest energy wavelengths and thus does the most damage to paper artifacts. This damage is caused by the breakdown of the chemical bonds in the cellulose that make up the paper. The wavelengths weaken the paper strength, similar to the effects of humidity.⁴⁰ Indoor lighting that causes the most damage is fluorescent light. Paper should not be kept out long in it, especially if it is particularly fragile.⁴¹

Temperature is one more environmental factor which contributes to the degradation of paper artifacts. When the temperature is high, the deterioration of paper becomes more rapid due to the increased chemical reactions than when the temperature is lower.⁴² This was shown in the work of Hudson, Hudson, and Edwards. When the three examined books kept in Antarctica from 1912 to 1959 and compared them to books kept in London during the same period. They found that those kept in the Antarctic were in essentially new condition, while those stored in London showed extensive deterioration.⁴³

⁴⁰ Banks, ix-x.

⁴¹ Ibid, 7.

⁴² National Research Council, 38.

⁴³ Ibid, 38.

Air is the last environmental factor in the damaging of paper. Air is a mixture of different gases that include oxygen (O), ozone (O₃), sulfur dioxide (SO₂), nitrogen oxide (NO), and other trace chemicals. These different types of gases react with the many different kinds of paper additives causing a multitude of chemical reactions. For example, sulfur dioxide (SO₂) in the air gets absorbed into the paper and oxidizes it. This reaction can be seen around the paper edges by the yellowing color. Nitrogen oxide has been shown to reduce the strength of cotton textile fibers when it is found in the presence of sunlight, it creates its own chemical reaction.⁴⁴

Other pollutants that can damage paper include exhaust emitted by vehicles. These pollutants come into the buildings by ventilation systems along with open doors and windows will react with the artifacts on display and in storage. Paints, coatings, and the solvents associated with them have been identified as a significant source of corrosive acidic or alkaline volatile emissions, which, if not given sufficient drying time, can interact with the surfaces of the artifacts stored on them.⁴⁵

The troubling part about environmental factors is that they can synergize to create even more irreversible chemical damage to paper artifacts. The combination of temperature and humidity can create a mold or mildew when both are high. Mold and mildew will attach to and can weaken the different components of paper artifacts by their feelers or root systems. These feelers get in between the fibers and slowly dissolve

⁴⁴ National Research Council, 15-21.

⁴⁵ Hatchfield, *Pollutants in the Museum Environment: Practical Strategies for Problem Solving in Design, Exhibitions and Storage*, 25-26.

them. When the combination of high temperature and low humidity are in effect the paper becomes brittle faster due to the moisture evaporating away.⁴⁶

Repairing Damage:

Most physical damage to paper artifacts can be fixed relatively easy. As stated earlier, chemical damage cannot be fixed, it can only be slowed down. The effort needed to repair paper artifacts depends on the age of the artifact itself. The older it is the harder and more expensive it will be to repair it. This is due to the fragility and components of the original paper.⁴⁷ There are different techniques for the conservation of paper. If a paper artifact has missing pieces or has become too brittle, it will have to go through a process like paper splitting or leaf casting. If the paper has become too “acidic” it will have to go through a de-acidification process. Methods for de-acidification of paper changed over the past decades. It has become more reliable and effective as well as less reactive to the printing inks on the paper. One of the processes to de-acidify paper is by soaking it in a solution of calcium hydroxide ($\text{Ca}(\text{OH})_2$) followed by a soak in a solution of calcium (Ca) or magnesium carbonate (MgCO_3). These soakings leave calcium carbonate (CaCO_3) in and on the paper making it less acidic.⁴⁸ This process can now be done in-house with the de-acidification solutions ranging in price from \$40 for a small amount and up to \$130 for a 40oz refill bottle; it covers about 25

⁴⁶ Banks, xiii.

⁴⁷ Ibid, xiii.

⁴⁸ National Research Council, 41.

square feet of paper or 300 3" x 4" clippings and is sprayed on the artifact. They can be bought from the archival suppliers University Products and Archival.⁴⁹

Holes form in paper artifacts, due to the previous cited factors. One method to fill these holes without causing damage to the rest of the paper is called leaf casting. Leaf casting can be done in multiple ways. The overall goal to leaf casting is having paper pulp fill in the holes with a vacuum, either by hand or over a fine screen.⁵⁰ The steps themselves are simple and basic for every kind of leaf casting method. First, to prepare the paper for the pulp fill, it needs to be thoroughly wet and placed into the bottom of a casting tub already filled with water. Once on the bottom the right amount of paper pulp is stirred into the water. After the pulp is stirred, the holes are filled either by hand or by suction via a screen. The screen is the best way to fill in large holes, while small holes are filled best by hand. Leaf casting paper pulp comes in multiple colors and can range in price from \$43 for the smallest amount to over \$100 for two pounds.^{51 52} Leaf casting should only be done by those who have been taught the proper procedure and only use the specified equipment, so as not to ruin the priceless paper artifact.

Paper artifacts can become brittle from the loss of moisture, and a method to strengthen them is called paper splitting. The process of paper splitting is accomplished by taking a brittle sheet of paper and carefully splitting it into two separate halves. Once

⁴⁹ Archival Products, "Deacidification Sprays and Adhesives," Archival, <http://www.archival.com/productcatalog/deacidification.shtml> (accessed June 30, 2013).

⁵⁰ Robert Futernick, "Leaf Casting on the Suction Table," *The Book and Paper Group Annual* (1982), <http://cool.conservation-us.org/coolaic.sg.bpg/annual/v01/bp01-14.html>.

⁵¹ Conservation Resources International LLC Archives: Library and Museum Preservation, "Leaf- Casting Paper Pulp," Conservation Resources International LLC, http://www.conservationresources.com/Main/section_29/section29_01.htm (accessed May 31, 2013).

⁵² University Products: The Archival Company, "Paper Pulp for Leaf Casting and Paper Infill," University Products, http://www.universityproducts.com/cart.php?m=product_list&c=1024 (accessed May 31, 2013)

done, a thick piece of strong, stable paper is inserted into the center and the original two halves are put back together. Until recently, paper splitting was done by hand, but thanks to the advancement in technology, it now can be done mechanically. Currently, this mechanical method is commercially available only in Germany; however the hand method is available in the United States.⁵³ Unfortunately, prices for the different companies that do paper splitting could not be found and therefore will not be included.

Photographs:

Photographs are another form of artifacts found in historical institutions. They capture everyday life both past and present in addition to recording historical and ethnographical information for posterity. Photographs are designated in two different forms: negatives and positives. A photographic negative is a photograph in which the tone scale of the image goes from dark to light and is reversed with respect to the subject in the photograph. An example of this is a plastic film negative where the background of the photograph is dark while the main objects are light. A positive is a photograph in which the dark to light scale tone is the same as that of the subject in the photograph, not reversed. The word “print” is often used in naming the positive photograph derived from the actual negative. This is what we see when film is “developed” and there is our photograph.⁵⁴

⁵³ Jennifer E. Hain, “A Brief Look at Recent Developments in the Preservation and Conservation of Special Collections,” *Library Trends* 52, no.1 (Summer 2003) 113.

⁵⁴ Bertrand Lavedrine, *Photographs of the Past: Process & Preservation* (Los Angeles: The Getty Conservation Institute, 2009), 8-10.

Early Photographs:

The first type of photograph was called a daguerreotype. It was invented on August 19, 1839 in Paris, France, by J. L. M. Daguerre. An image was created by first exposing a thin coating of pure silver on an exposed copper sub-support to light. After the exposure, an image was developed or made to appear by exposing the daguerreotype to the fumes of heated mercury. After this exposure to the fumes, the silver iodine layer chemically developed was dissolved in a solution of water and sodium thiosulphate. This made the image appear positive under certain lights and angles and negative under others. Later improvement to this method used bromine and chlorine fumes instead of mercury, due to its' easier and faster development.⁵⁵

A daguerreotype starts to deteriorate as tarnish occurs on the silver coating on which the image was created. This deterioration will appear as yellow, magenta, or blue haze. There are usually concentric rings proceeding from the outside in. The tarnish is caused primarily by polluted or humid storage environments or by inappropriate handling.⁵⁶

The next early photographs that coexisted with daguerreotypes are called tintypes. Tintypes are positive photographs that are supported on a sheet of lacquered iron and are laterally reversed, like a reflection in a mirror.⁵⁷ They are created by the wet-plate collodion process. This process was invented by Fredrick Scott Archer in 1851. The process begins with an iron plate coated with a thin layer of liquid collodion carrying dissolved iodide or bromide salt. This iron plate would be immersed in a bath

⁵⁵ Kodak, *Conservation of Photographs* (Rochester: Eastman Kodak Company, 1985), 25.

⁵⁶ Lavedrine, *Photographs of the Past*, 26-29.

⁵⁷ *Ibid*, 34.

of silver nitrate, forming silver or bromide iodide. This combination maximized sensitivity; and the plate had to be exposed while still wet. This created a latent image that was developed with pyrogallic acid. Potassium cyanide or sodium cyanide was used to fix the image on to the glass.⁵⁸

These were patented by Hamilton Smith in 1856 though the proper name was “Ferrotypes,” before the more common name tintype became widespread. Tintypes were inexpensive and easily handled, making them popular for portraits right up to the 20th century.⁵⁹

Tintypes were usually provided with a protective glass, as many of them were portraits and were meant to be handled. Unfortunately, most of these that have survived have their glass scratched and the sheet of lacquered iron support is bent. When the protective glass is missing, the picture begins to rust, caused by humidity reacting with the iron plate. The rust will cause the overlying lacquer and image layer to blister and detach.⁶⁰

Glass Plate Photographs and Negatives:

Glass plate photographs were some of the earliest forms of photography that lasted until the early 20th century. The first kind of glass plate photograph was called an ambrotype. They are created by having a collodion negative put on glass, instead of iron, in which the glass is underexposed and treated with a chemical solution that gives the image white tones instead of brown tones. The glass support of the photograph can

⁵⁸ Ibid, 30.

⁵⁹ Kodak, *Conservation of Photographs*, 31.

⁶⁰ Lavedrine, *Photographs of the Past*, 37.

be broken easily and should be handled with care. Other deteriorations factors include the silver being oxidized from being exposed to air and moisture. This will create a darker image that lacks contrast.⁶¹

There are different types of glass plate negatives including the albumen glass plate negatives and the gelatin silver glass plate negatives. The albumen glass plate negatives are negatives on a glass plate where silver particles are suspended in a layer of albumen coating creating the image. Tiny star-shaped cracks are commonly found by microscope on this type of image and are the result of the creation process. Due to the negative being on glass, it is vulnerable to cracks and breakage.⁶²

The gelatin silver negative on glass is created when a glass plate is covered with a gelatin coating that contains silver particles that make up the negative photograph. This type of negative is often found in poor conditions due to the glass breaking or the gelatin layer detaching from the glass. The detachment is caused by the fluctuations between high and low humidity weakening the attachment layer of the gelatin. Gelatin silver glass plate negatives are also prone to oxidation of the silver which is seen by fading, yellowing and a silver mirroring.⁶³

Plastic Photographs:

Plastic film was first used in motion pictures in 1889 and it gradually replaced all previous photographic methods and camera materials. The process that is used for plastic film is called chromogenic process transparency. This process produces a

⁶¹ Ibid, 52-54.

⁶² Ibid, 235-236.

⁶³ Lavedrine, *Photographs of the Past*, 245-248.

positive photographic image composed of three superimposed layers of gelatin, containing three dyes of yellow, magenta, and cyan. This same combination of dyes has been used throughout the entire use of plastic film until the use of digital imaging took over in the late 2000s.⁶⁴ Many uses for this type of film as well as cameras were developed by the Eastman Kodak Company, located in Rochester, New York.⁶⁵

Just like the early photographs, plastic film will deteriorate. The three dyes used in plastic film will fade quite rapidly when the film is exposed to light. Unfortunately, it will also fade and degrade, if more slowly, if it is left in dark storage. Both storage locations will lead to a change in the color quality of the photographs. Potential deterioration of the film support will show after a few decades.⁶⁶ If the support is made of cellulose triacetate it will release acetic acid reducing the strength of the polymer. The base will shrink causing the gelatin emulsion to produce folds as well as small bubbles forming.⁶⁷

Paper Photographs:

Photographs on paper are obtained by placing objects directly on a piece of special photosensitive paper. After exposure to a light source, the image on the paper is stabilized in a salt solution. An albumen print is a positive paper photograph with a layer of egg whites that holds a silver image with a sheet of paper as the support

⁶⁴ Ibid, 86-87.

⁶⁵ Kodak, *Conservation of Photographs* (Rochester: Eastman Kodak Company, 1985).

⁶⁶ Ibid, 88.

⁶⁷ Ibid, 256.

base.⁶⁸ It was introduced by Louis-Désiré Blanquart in 1850 in Dresden, Germany. By 1870, most of the world's demand was supplied with this type of photograph.⁶⁹

When albumen coated paper begins to deteriorate, it develops a yellow color in the lighter colored areas of the photograph. It is also seen by the fading of the image and an overall reduction of contrast. The yellowing in the lighted areas is caused by the decomposition of the silver albuminate compounds. As with other photographs, excessive humidity will speed up the process of deterioration. Excessive humidity creates cracks from the internal tensions in the print structure caused by the absorption of moisture. Lastly, albumen photographs are found attached to cardboard mounts, which have their own deterioration problems. These include soaking up water and becoming acidic, as well as becoming brittle as the aging additives start break down.⁷⁰

Another type of paper photograph that is common in collections is called Printing-Out Photographs or POP. They were the first widely accessible photograph paper in the 19th century. POP were manufactured industrially with a three-layer structure: a paper layer, a baryta (special barium sulphate coating applied to paper base) layer, and an image-carrying layer.⁷¹ The combination of these three layers as well as other factors distinguishes them from albumen prints.⁷²

Printing-Out Photographs' stability and the speed in which they will deteriorate depend on how the photographs were actually processed, handled, and stored.

⁶⁸ Ibid, 114.

⁶⁹ Kodak, 32.

⁷⁰ Ibid, 115-119.

⁷¹ Metro Imaging, "What is Baryta Paper," Metro Imaging Ltd., <http://www.metroimaging.co.uk/faqs/what-is-baryta-paper> (accessed July 20, 2013).

⁷² Lavedrine, *Photographs of the Past*, 128.

Photographs will maintain their optimum quality with proper care. This care includes high standards of processing, handling, and storage. When deterioration is seen, it is from abrasions which POPs are prone to since, they can be easily scratched or worn. Finally, the underlying support layer can expand and contract, forming cracks that can only be viewed with a microscope. Therefore, these will not be caught as quickly, where upon the cracks will expand over time to cause obvious damage.⁷³

Color paper photographs are a more recent development in paper photographs. There are two types of color photographs: color pigment photographs and chromogenic process photographs. Color pigment photographs are obtained by superimposing three or four monochrome pigment or color layers onto a paper support.⁷⁴ The chromogenic process color photographs have three separate gelatin layers stacked on top of one another. The top layer contains cyan dye, the middle layer contains a magenta dye, and finally the bottom layer contains a yellow dye.⁷⁵

Color pigment photographs are relatively stable. The main problem is the tension that is inherent in multiple layers. This leads to cracks and delamination of the colored layers from the paper support underneath. The chromogenic process photographs are vulnerable to fading just like other types of photographs. Yellowing or staining of the highlighted area can occur and is most easily seen in the white borders surrounding the photograph.⁷⁶

⁷³ Ibid, 132.

⁷⁴ Ibid, 198.

⁷⁵ Ibid, 213.

⁷⁶ Lavedrine, *Photographs of the Past*, 215.

Photographic Negatives:

Photographic negatives are the original image from which photographs are created. Negatives are found in many of the institutions that are reviewed in this thesis. Most negatives in institutions are gelatin silver negatives, either on film or glass (as discussed earlier). A gelatin silver negative on film can be made up of any one of three materials: cellulose nitrate, cellulose acetate, or polyester. All three kinds have a layer of gelatin holding silver particles. This combination is what creates the image on the support.⁷⁷

The black and white gelatin silver negative has good image stability, but the plastic support may be unstable. This plastic support is a difficult problem in preservation because once it begins to deteriorate, the deterioration is irreversible. This deterioration is signaled by a variety of visible and non-visible alterations. The first sign that the negative is deteriorating is an acidic odor, like vinegar, which is referred to as “vinegar syndrome”. This degradation can also damage the storage container and artifacts stored around it. The physical deterioration begins with distortion and the oxidation of the silver image, producing a browning or staining to the negative.⁷⁸

If gelatin silver negative is left in a humid environment, the emulsion on the film will soften and stick to the storage envelope or other films. If it is left in a too-dry environment, it becomes brittle and can fall apart when handled. In the final stage of deterioration, the negative becomes one black mass of film that cannot be separated or handled safely. Gelatin silver negative that has a plastic support of cellulose nitrate is

⁷⁷ Ibid, 255.

⁷⁸ Ibid, 256.

extremely flammable and can self-ignite once it reaches the final state of deterioration. Once this kind of negative catches on fire, it must burn itself out.⁷⁹

Cellulose triacetate negatives are less flammable than gelatin silver negatives, but also a lot less stable. A cellulose triacetate negative lasts only a few decades. As it deteriorates, the base will shrink and small bubbles will form in the plastic. Just like gelatin silver negatives, the deterioration in cellulose triacetate negatives is irreversible and will continue until there is nothing left but a big black mass of film.⁸⁰

The only method to slow down the deterioration of both negatives is a technique called cold storage. The colder the storage facility, the longer the film will last. Research has showed that negatives stored at a temperature of 20 °C with 50% humidity will last for 45 years; at a temperature of 10 °C with 50% humidity, 160 years; and at temperature of -10 °C with 50% humidity, they will last 2,740 years. Finally, at a temperature at -20 °C with 50% humidity, they will last an estimated 10,000 years.⁸¹

Environmental Causes of Damage to Photographs and Negatives:

Environmental damage that is caused by light, temperature, humidity, and air pollutants occur in all photographs and negatives and are similar to the environmental damages done to paper. The combination of temperature and humidity will cause mold to grow on the photographs, just like paper. Unlike paper, though, photographs have the perfect medium to encourage growth: gelatin. Mold spores that land in gelatin present similar signs to that of paper: the appearance of gray blisters or small spots surrounded

⁷⁹ Ibid.

⁸⁰ Ibid.

⁸¹ Lavedrine, *Photographs of the Past*, 278.

by threadlike networks. Once these networks take hold, the image on the photographs will disappear at that location as the mold “eats away” at the gelatin and emulsion surface.⁸²

Air quality and air circulation are major concerns for photographs. If the circulated air is not purified, then pollutants, including mold spores, can build up. The pollutants that are in the air include sulfur dioxide (SO₂), nitrogen oxide (NO), and ozone (O₃), among many others. Pollutants can come from the outside air, but also from the inside of the building from cleaning supplies, varnishes, and paints.⁸³

Textiles:

The word textile covers a wide range of cloth artifacts including clothing, quilts, and tapestries. Textiles are similar to paper and photographs in that as they get older and are exposed to environmental agents, they become more fragile and eventually cannot be handled due to damage to the textiles' composition of organic materials, like cotton or wool. Raw cotton or wool is weaved, felted, knitted, or crocheted into different cloths, tapestries, or quilts. Some textile artifacts have been known to last hundreds or thousands of years. Mummies -- some over 4,000 years old, from Egypt, Peru, and other parts of the world--have been found with cloth still attached to their bodies due to the arid climate. The largest known tapestry in the world is the Bayeux Tapestry. It was created in 1067 after the Battle of Hastings, making it almost 1,000 years old.⁸⁴ It is still

⁸² Ibid, 279.

⁸³ Ibid, 284.

⁸⁴ The Middle Ages Website, “Bayeux Tapestry,” Lords and Ladies, <http://www.middle-ages.org.uk/bayeux-tapestry.htm> (accessed December 2012).

in good conditions with only a few sections missing due to preservation that started in the early 1800s.⁸⁵

Textiles may differ in manufacturing method and fibers composition. Their deterioration is diverse, but there are some common paths of deterioration. Since some textiles are made from organic materials, like cotton and wool, they are prone to attacks by insects. These insects include clothes moths and their larvae, carpet beetles, and silverfish. All three types of insects feed on the organic materials, making different sized holes. Insects are often camouflaged, which leaves them harder to detect until the damage has been done to the cloth.⁸⁶

Environmental Damages:

The four environmental factors that damage paper artifacts and photographs also damage textiles. The greatest damage to textiles is caused by light, especially by the ultra violet (UV) light given off from the sun and fluorescent light bulbs frequently used in museums and other places of business. The UV light causes the dyes in the cloth to fade and will eventually cause the fibers to become brittle. High temperature combined with high humidity cause mold and mildew to grow on the cloth and in between the fibers. The primary reason behind this mold and mildew growth is that the fibers found in textiles absorb water very quickly and desorb it slowly. Once the cloth is wet and the temperature rises, these organic material-based artifacts become a prime spot for growth. Relative humidity (RH) of about 80% will support mold grow on cotton or linen,

⁸⁵ Normandie Heritage, "The Bayeux Tapestry," Normandie-heritage, <http://www.normandie-heritage.com/spip.php?article393> (accessed September 7, 2013).

⁸⁶ The Textile Museum, "Pest Busters," The Textile Museum, <http://www.textilemuseum.org/care/brochures/pestbusters.htm> (accessed January 2013).

and 92% RH will support growth on wool and silk.⁸⁷ Mold and mildew can be seen as a white fuzzy “blob” that results in the presence of a stain once it dies.⁸⁸

Air contains pollutants that are harmful to textiles. Sulfur dioxide (SO₂) from cars and industries is the most harmful of all of these pollutants as it will affect certain dyes in the cloth. Dust in the air is more harmful to cloth than to printed materials or photographs for it acts like small knives that will cut into the fibers as the textile expands and contracts in response to the RH and temperature in the room where the textiles are stored.⁸⁹

Finally, human touch can leave marks and even start deterioration in textiles. The person handling textiles should hold them gently. If there is too much pressure on the textile, it can damage the fibers. Loose hair and dead skin can end up on the textile, leaving a base for dust particles to attach. Oils in human skin are transferred to handled textiles and cause chemical deterioration. Linen gloves should be worn while handling textiles. Improper handling can do more damage to the textiles than the environment in which they are stored.⁹⁰

Paper, photographs, and textiles are essential artifacts to use to showcase the history of certain time periods, themes, or people. Regrettably, paper, photographs, and textiles require great care to prevent deterioration. They can be lost to future generations in a short amount of time. All of these artifacts are important parts of

⁸⁷ Smithsonian Museum Conservation Institute, “Insects and Wool Textiles,” Smithsonian Institution, http://www.si.edu/mci/english/learn_more/taking_care/insects.html (accessed January 2013).

⁸⁸ The Textile Museum, “Guidelines for the Care of Textiles,” The Textile Museum, <http://www.textilemuseum.org/care/brochures/pestbusters.htm> (accessed January 2013).

⁸⁹ Ibid.

⁹⁰ Smithsonian Museum Conservation Institute.

museums, historical societies, and archives collections. Knowing the different kinds of artifacts along with the unique deterioration problems that they face will help organizations deal with the cost of preservation that they need.

Chapter 5: Buildings and Storage

How artifacts are stored determines to a great extent the level of preservation that is possible. Preservation quality depends on the storage containers and the environmental controls used in housing them. When not properly housed, artifacts will deteriorate and will be lost for future generations to research. When they are properly stored and monitored, the artifacts can be viewed, studied, and enjoyed for many generations to come.

Storage Containers:

There are many different storage methods and materials used in institutions. The main method of storage for any type of artifact is boxes. Specialized boxes can be bought from a number of different sellers that specialize in the preservation of materials. Four of the vendors noted in this paper are Archivart, Gaylord, University Products, and Conservation Resource International, LLC. However, these four vendors are not the only ones that specialize in these types of products; there are many others that can be located simple internet searches or by consultations with historical repositories.

Boxes:

Boxes that are used in the storage of artifacts come in different shapes and sizes, and they should be made of archival quality material. This variety of sizes helps fit artifacts securely and safely without damage to the corners, lips, and bottoms of the artifacts. There are boxes with flip-up lids and boxes called clamshells boxes, designed for upright storage of documents and other flat paper items as well as some that are

designed to lay flat for the storage of photographs.⁹¹ Both of these kinds of boxes have their lids attached to the overall body of the box. The supplier Archivart has different sizes of these types of boxes that range from 14 inch x 11 inch x 2 inch for their small box to 40 inch x 32 inch x 2 inch for their large boxes. All of Archivart boxes come in a carton containing 15 boxes.⁹²

The boxes that have lift-off lids are ideal for artifacts such as buttons, textiles (e.g., dresses and hats), and some paper items (e.g., large movie posters). Many preservation companies supply standard sizes of these types of boxes as well as custom flat boards for individual institutions to create their own customized boxes or trays for items such as buttons or jewelry. Gaylord sells multiple sizes of these boxes, ranging in size from ¼ inch x 12 inch x 5 inch to 16 inch x 20 inch x 5 inch. Each box is priced individually.⁹³ University Products sells their boxes based on artifact use -- textile or paper and photographs. Their textile boxes come in a carton of five and range in size from 30 inch x 16 inch x 6 inch to 40 inch x 18 inch x 6 inch. University Products archival boxes range in size from 12 inch x 10.25 inch x 5 inch for small to 20 inch x 16 inch x 5 inch inches for large boxes; each of their archival boxes are priced individually.⁹⁴ Both Archivart and Conservation Resource International, LLC, also sell both artifact and textile boxes.

⁹¹ Nelly Balloffet and Jenny Hille, *Preservation & Conservation for Libraries and Archives* (Chicago: American Library Association, 2005), 57-58.

⁹² Archivart, "Archivart, Archival Products for Conservation, Exhibition and Storage," Archivart, <http://www.archivart.com/> (accessed December 2012).

⁹³ Gaylord, Archival Storage Boxes," Gaylord Brothers, <http://www.gaylord.com/listing.asp?H=3&PCI=128196> (accessed December 2012).

⁹⁴ University Products, "University Products: The Archival Company," University Products, Inc., www.universityproducts.com (accessed December 2012).

Protection Wrapping:

Supply companies also sell a special type of tissue paper to cover and surround artifacts to protect them from dust and other particles. It is similar to the plain tissue paper that is used in wrapping gifts. However, archival tissue paper is manufactured differently from conventional tissue paper and is pH balanced so it will not harm artifacts over time. Archival tissue paper comes in two different forms: buffered and unbuffered. Buffered tissue paper has an alkaline substance like calcium carbonate (chalk) added as an alkaline reserve to counteract acids that may be inherent in the artifact. Unbuffered tissue paper is pH neutral.⁹⁵ Buffered tissue paper should be used with artifacts such as cotton, flax, linen, and plant-based specimens to protect against acid migrating from one artifact to another. Unbuffered tissue paper should be used on protein based fibers such as wool and silk as well photographs and some paper documents like blueprints.⁹⁶ Each of the suppliers mentioned sells either kinds of tissues, either in sheets and rolls or both. Conservation Resource International, LLC, sells the buffered tissue in 22 inch x 30 inch sheets or in a 44 inch x 1500 foot roll. Their unbuffered tissue paper comes in a 20 inch x 30 inch or 30 inch x 40 inch sheets and in a 36.6 inch x 109 yard roll.⁹⁷

Some of the respondents answered in detail the survey question “Do they use simpler, lower cost, solutions to preserve materials?” This includes using boxes and

⁹⁵ Gaylord.

⁹⁶ Gaylord, “Buffered vs unbuffered...Which is best?,” Gaylord Brothers, http://www.gaylord.com/page_manager_st_leftnav_no_ewe.asp?page_ID=509&LeftNav_ID=900 (accessed December 2012).

⁹⁷ Conservation Resource International, “Conservation Resources International LLC, Archives, Library & Museum Preservation,” Conservation Resource International, LLC, www.conservationresources.com (accessed December 2012).

containers to store their artifacts. Historical Society A was the one of three respondents to specifically mention storage boxes or containers. They indicated that they create their own storage boxes, but did not state if the materials were from an archival supplier or bought from a local store. If they use store bought boxes then this is a money saver for their limited budget, but can be detrimental for the artifacts after a few years as the boxes themselves begin to deteriorate and potentially migrate acid into the stored artifacts. Museum B was the second respondent to specifically mention boxes or containers and stated that preservation begins with proper housing and therefore uses non-reactive containers. To me, this indicates that they are willing to spend some of their limited budget to purchase archival-quality storage boxes and containers. Museum D is another respondent to answer that they use standard preservation materials, so one might therefore assume that this includes archival-quality boxes and storage containers, though they did not state individual materials. This indicates that they also are willing to spend some of their limited budget on the pricey archival boxes and containers to store their artifacts.

Furniture:

Storage furniture for institutions comes in different sizes and materials. Materials include wood, plastic, and/or metals. In choosing material for furniture, it is worth investing in shelving and cabinets made from material that will not hasten the deterioration of the artifacts being stored.⁹⁸ The reasoning behind this is that storing the artifacts in the correct storage boxes will only help for so long in preserving the artifacts, especially if the cabinets and shelves that the boxes are sitting on give off chemical

⁹⁸ Nelly Balloffet, *Preservation & Conservation for Libraries and Archives*, 20.

emissions that deteriorate artifacts. These pollutants can make their way inside the storage boxes as time passes.

Currently, the best material to use for storage furniture is powder-coated steel (rather than baked enamel steel). Wood used in shelving and other forms of storage furniture should not be used. Wood gives off acidic gases that are damaging to the majority of artifacts that would be stored on them. If there is not money to buy new furniture, then updating the existing furniture could be the way to go. First, wooden shelves in bookcases can be slowly replaced with powder-coated steel or chrome-plated steel as the money becomes available. Second, if wooden furniture is the only option, then using wood like mahogany, popular, spruce, or walnut is best. These woods give off the least amount of acidic gases, though these woods can be expensive to buy, especially for museums on a limited budget. They should only be considered if they come cheaper than the powder-coated steel. Third, acquiring barrier products, such as mylar, to line shelves and drawers will create a barricade between the wood and the artifacts.⁹⁹ All wood, no matter what kind it is, should be sealed with wood sealant and allowed to dry off site for three to four weeks so that the gases from the sealing chemicals do not affect the artifacts once they are stored on the wood.¹⁰⁰

Other respondents to the survey mentioned furniture while answering the question: “Do you use simpler, lower cost, solutions to preserve materials?” Historical Society C stated that they use supermarket-type shelving in collections areas. If the shelving is bought brand new it would make good shelving as there would be no residue

⁹⁹ Ibid.

¹⁰⁰ Ibid.

from food products. If it was bought used it would be marginally good shelving, depending on if they thoroughly cleaned and repainted it. Historical Society C did not state if it was new or used.

Historical Society C was not the only society to respond about furniture. Historical Society A stated that they use pallets for oversize storage decking. This would be bad for the artifacts being placed on them, as wooden pallets are not sealed with any wood sealant and are made of lesser quality wood. Hopefully, they have sealed the pallets before using them, but they did not say.

The one archives respondent stated that they have been moving into a new space and are looking at cost-saving solutions such as fencing for pictures as well as proper, if cheap, storage materials.

The majority of the museums in the survey also specified furniture use while answering the question. Museum B seems to be preserving their artifacts very well. They not only use proper storage containers, but they also use proper shelving. They even maximize space by using metal wiring on walls to accommodate framed posters and photographs. As stated earlier Museum D uses standard preservation materials, and it is assumed this includes not only archival boxes, but also proper archival furniture. Finally, Museum E explained that they have a state-of-the-art storage facility next door to their museum which used all of the best materials when it was constructed. This decision would have resulted in greater building and furniture costs for Museum E; but this proper archival furniture should save money on preservation costs later. The

money that they saved on further preservation efforts can then be used to purchase more preservation materials for new collections they acquire.

How to store artifacts correctly:

Besides having correct storage materials and furniture, positioning the artifacts correctly -- both in and out of storage containers -- will help in keeping the artifacts in the best condition possible. To store books properly, they should be placed perpendicular on the shelf and not allowed to bend downward. If book ends are being used, they should be made of plastic or steel and be sturdy enough to hold the books in place without sliding backwards. In all institutions, books are stored by placing them on shelves either by standing up or by lying flat. When books are stored in boxes they are to be placed flat on top of other books. This allows the weight to be distributed better so that they do not sag and become distorted or break their bindings.¹⁰¹

Paper documents are stored together without three-dimensional artifacts to make sure they are not physically damaged by heavier objects. They should be placed in protective acid-free file folders, envelopes, polyester sleeves or other enclosures of acid-free construction before being stored. Larger paper documents like maps or prints should be stored lying flat in a flat-filing cabinet made for archival materials. If a flat filing cabinet is not available, such material should be carefully rolled and stored in archival boxes that are specially designed to house and support them. Those artifacts that are

¹⁰¹Nelly Balloffet, *Preservation & Conservation for Libraries and Archives*, 21-23.

in frames should be stored vertically by hanging on hooks in the wall or in padded frame racks.¹⁰²

For museums that are on a tight budget, obtaining any of these storage materials can be difficult. However, there are alternate, simpler, and less costly methods that can be used to obtain the storage materials needed for the protection and preservation of artifacts. For example, counting the number of artifacts that need to be put into storage boxes or cases will allow for more accurate ordering. If, after counting the artifacts, there are found to be uneven with the amount of boxes sold together, then ordering the larger quantity is best and often results in a better price. Also ordering a larger quantity results in every artifact being housed; and the left over materials can be stored and used later when more artifacts are received. Another good method is to carefully compare prices from suppliers that specialize in preservation materials.¹⁰³

Environmental Controls:

Controlling the environment that the artifacts will be stored or displayed in is a contributing factor in their life expectancy. As stated in the previous chapter, the four environment factors that cause damage to artifacts are light, humidity, temperature, and air pollutants. Different technologies and tools are used to monitor and control these four variables. Like the storage materials, different companies sell different technologies to monitor and control the environment surrounding the artifacts.

¹⁰² Ibid, 24-25.

¹⁰³ Balloffet, 54-56.

Light:

Light is an environmental factor that is the easiest of the four to control. Light sources originate from inside and outside the building. As stated in the previous chapter, light is damaging to all type of artifacts held by institutions. The most damaging is ultraviolet (UV) light. The most common source of UV light is fluorescent lights that are put in to illuminate the areas for patrons and workers, along with sun streaming through windows. A method to block the UV light from the fluorescent lights is a sleeve filter over the bulb itself. The sleeve can last up to 10 years.¹⁰⁴ ¹⁰⁵ Another method to diminish the damage done to artifacts is to reduce the wattage of the light bulbs.¹⁰⁶ To block the harmful rays coming in from the windows, window tints should be used. Window tints are applied directly to the windows themselves. The costs vary based on size. They can be acquired from archival suppliers including Gaylord and University Products between \$185 and \$220, depending on size and if they are self-adhesive.¹⁰⁷ ¹⁰⁸ This can be a little more costly for some institutions, but it can help save artifacts and the cost of preservation later on. Some other simple, less costly methods to reduce natural light damage from outside windows include installing curtains, blinds, or shutters and keeping them closed, whenever possible, including when the institution is closed. These are only a few methods to keep light from damaging the delicate artifacts that are on display. Additional, less frequently used

¹⁰⁴ Ibid, 8.

¹⁰⁵ Timothy Ambrose and Crispin Paine, *Museum Basics*, "Section 3 The Development & Care of the Museum's Collection," New York: Routledge, 2012: 170.

¹⁰⁶ Ibid.

¹⁰⁷ Gaylord, "Filtering film, UV, WindowGrip," Gaylord Brothers, http://www.gaylord.com/adblock.asp?abid=17849&search_by=desc&search_for=window%20tints&mpc=WW, (accessed July 5, 2013).

¹⁰⁸ University Products, "UV Filter Film," University Products Inc., http://www.universityproducts.com/cart.php?m=product_list&c=2175, (accessed July 5, 2013)

methods are described in the books and articles by Timothy Ambrose and Nelly Balloffet in the Bibliography.

Humidity and Temperature:

Humidity and temperature go hand and hand with damage to artifacts. An overview of this kind damage has been given in the previous chapter for each of the different main materials found. This section will go more into depth on how these two environmental factors create the damage. When looking at humidity, a collections manager looks specifically at the relative humidity (RH) of the area. Relative humidity is the amount of water content in the air compared to the maximum amount that the air can “hold” at a certain temperature.¹⁰⁹ The higher the temperature, the more moisture the air can hold. The combination of high levels of temperature and RH can lead to mold growth, which damages the artifacts in ways specific to each type of material.

Temperature and humidity are the hardest to control out of the four environmental factors. The attempt to control internal building temperature and humidity can range from minimal to very precise, depending on the sophistication of the building, the availability of funds, and the desire to upgrade. At one extreme, a small, old museum many have baseboard heat that is turned down at night, no air-conditioning, and ventilation provided only by manually opening windows. At the other extreme, a modern museum may have a heating-ventilating-air conditioning (HVAC) system that precisely controls temperature and humidity at all times.

¹⁰⁹ Dictionary.com, “Relative Humidity,” Dictionary.com, LLC., <http://dictionary.reference.com/browse/relative+humidity> (accessed June 26, 2013).

Institutional personnel monitor temperature and humidity around selected artifacts by using different system technologies. With information from the monitors, personnel can make informed decisions on changing the temperature and humidity controls around artifacts to reduce degradation. As with preservation storage materials, there are different suppliers that supply different monitoring equipment. These monitoring vendors may not make their products specifically for museums or archives. Thus each device should be understood thoroughly before purchasing. In this paper, three suppliers will be looked at: ART Preservation Services, Dickson, and Talas.

An HVAC system can provide a 24 hour a day, 365 days a year protection of artifacts with only a minimal amount of work for the personnel of the institution. If an HVAC system is installed, it should also be designed to include special filters that will remove particles and harmful pollutants from the air. These filters are changed out when dirty by maintenance personnel.¹¹⁰ Having a properly conditioned building will help the materials in the best condition possible.

The main monitors for measuring humidity and temperature are called hydro-thermographs. These monitoring instruments provide both current readings of temperature and humidity and keep a record of past data that has been collected. They are portable, stand-alone, and run on batteries. Some have a downside in that they have to be regularly calibrated, which can be time-consuming, but in comparison to losing artifacts, it is a minor obstacle. Talas sells a digital version of a hydrometer/thermometer that does not need to be calibrated.

¹¹⁰ Ibid.

Data loggers are more sophisticated monitoring equipment that are small and battery powered. They digitally record the surrounding environmental conditions including temperature, humidity, and light. They come with computer software that allows the devices to be connected to a business or personal computer to download the information that they have recorded.¹¹¹ Both Talas and Dickson companies sell data loggers. Talas offer a desktop printer, software interface, and docking station separately for their equipment.¹¹²

ART Preservation Services sells environmental monitoring equipment such as their Elseec 765 UV meter that measures environmental factors including UV and visible light, relative humidity, and temperature. They sell an instrument that measures only humidity called an Arten Meter. These instruments can be bought to read in degrees Celsius or Fahrenheit. The calibration kit for them is sold separately.¹¹³

Finally, Dickson has a more sophisticated touch screen interface monitoring instrument that measures temperature and humidity and transmits the data to a remote computer. This touch screen does need software to communicate with the product, along with a computer, which is sold separately.¹¹⁴

All of these environmental monitoring systems can be expensive when bought all at once, but can be manageable when acquired over months or years. Buying

¹¹¹ Nelly Balloffet, *Preservation & Conservation for Libraries and Archives*, 6.

¹¹² Talas, "Talas Environmental Controls, Instruments, & Measures," Talas, http://apps.webcreate.com/ecom/catalog/category_listing.cfm?ClientID=15&CategoryTLID=61 (accessed December 2012).

¹¹³ ART Preservation Services, "APS: NYC Art Preservation Services," Art Preservation Services, <http://www.apsnyc.com/> (accessed December 2012).

¹¹⁴ Dicksons, "Dickson: Solutions for Monitoring and Capturing Data," Dicksons, <http://www.dicksondata.com/> (accessed December 2012).

temperature and humidity monitors are the best and cheapest way for the institutions that do not have much money. Counting the number of cases or rooms that need the monitors can also keep the cost to a minimum. Utilizing these monitors in the main display or storage areas will help reduce the deterioration to the artifacts in those locations since the museum personnel can change the heating system temperature setting. There are other methods to receive the funds needed to purchase the more expensive monitoring equipment, like grants and fundraising. These methods will be looked at in the next chapter.

Almost all of the survey respondents answered the question: “Please list any environmental monitoring equipment you have for displays and storage areas?” Two out of the three historical societies that responded answered that they use monitoring equipment. Historical Society A uses Climate Notebook and monitors throughout their collection storage and exhibition areas. Climate Notebook is a computer software program that allows personnel to compare and analyze various storage environments in terms of preservation quality. It is now available online as eClimateNotebook.¹¹⁵ Historical Society C uses digital temperature and humidity monitors in all of its storage rooms, but it is not centralized throughout the whole building. The one archives that responded has a hydrometer currently, but in the past have used a Preservation Environment Monitor (PEM). Preservation Environment Monitor is a data logger made

¹¹⁵ IPI: Image Permanence Institute, “Climate Notebook Software,” Rochester Institute of Technology, <https://www.imagepermanenceinstitute.org/environmental/climate-notebook> (accessed August 26, 2013).

by Image Permanence Institute to monitor the environment in museum, libraries, and archives.¹¹⁶

All of the museums surveyed related that they use some form of environmental monitoring equipment in their buildings and storage areas. The museums all monitor the humidity and temperature, but use different monitoring equipment to do so. Museum A uses HOBO data loggers for their temperature and humidity and a visible light meter for the artifacts that are on exhibit. Museum B uses PEM readers in their collections vaults. Museum C stated that they use temperature and humidity control, but did not specify the equipment that they utilize. Museum D indicated that they use heat and humidity controls along with hygrothermagraphs and electronic monitoring for their building and storage areas. The final museum, Museum E, has Climate Notebook and Image Permanence Institute PEM 1 monitors throughout their facilities. This information given by the museums, historical societies, and archives shows that the preservation of the artifacts is important and that monitoring the environment is one of the ways in which these institutions can help their preservation and life expectancy.

Air:

Special air filters are manufactured to remove a multitude of artifact-damaging chemicals and pollutants. Air filters are sold by different companies that do not necessarily gear their products toward the archival and museum world, but to people who have reactions to the air and need it cleaner than normal. Purafil is one such company that makes these filters. Purafil filters contain special granules that are

¹¹⁶ IPI: Image Permanence Institute, "PEM2 Datalogger," Rochester Institute of Technology, <https://www.imagepermanenceinstitute.org/environmental/pem2-datalogger> (accessed November 11, 2013).

designed to react to specific gaseous pollutants, and they convert these into harmless compounds. One downside to their filters is that they do not remove a high percentage nitrogen dioxide (NO₂), which is a prime pollutant in the degradation of museum-type materials.¹¹⁷

Facilities:

Finally, none of the storage approaches put into effect by institutions will work to the best of their ability if the building itself is not adequate. Many of the buildings that house the collections of historical societies, archives, and museums were not originally intended for this use, but were designed to be comfortable for people.¹¹⁸ The optimal environmental conditions for artifact storage and for personal comfort are typically very different. Today, older buildings are showing their age with cracks in the walls and loose frames around doors and windows as the buildings continue to settle.

Economics:

Economic downturns often lead institutions to cut building maintenance instead of cutting the funding towards personnel and acquisitions.¹¹⁹ Poorly maintained buildings lead to increased artifact deterioration. Water entering the building from a leaky roof or basement wall and outside air entering through drafty windows and door frames brings more undesirable environmental pollutants and fluctuations inside. This may lead to quick deterioration of r new acquisitions. The easiest way to keep the buildings in optimal condition is to immediately seal leaks or replace the window and

¹¹⁷ Purafil, "Media," Purafil, Inc., <http://www.purafil.com/products/media.aspx> (accessed May 25,2013).

¹¹⁸ Nelly Balloffet, *Preservation & Conservation for Libraries and Archives*, 2.

¹¹⁹ Teper "Current & Emerging Challenges for the Future of Library & Archival Preservation," 36.

door frames that have deteriorated. The materials needed to do these repairs are easily found in local hardware stores.

Maintenance personnel of the institution can make some repairs themselves, avoiding the higher cost of an outside professional. These repairs can include sealing windows and doors, fixing a leaky sink or toilet, changing out broken light bulbs, and plugging a hole in the roof. The reason behind maintenance personnel doing this work is that they have training in these fields. Keeping window and door leaks repaired also results in lower heating and cooling costs, which can easily cover the cost of the repairs.¹²⁰

All survey participants responded that some percentage of their budget went into building maintenance, which gives them a good start in the preservation of their materials. Historical Society B had the highest percentage for historical societies at 20% of their budget for their building maintenance, while the other two were below 10%. Historical Society B staff put their building maintenance allowance toward improvements and repairs along with keeping an alarm system. The majority of the museums respondents spend between 10% and 14% of their annual budget on building maintenance. Museum B is the exception with 47% of their annual budget going towards their building. They did not state why their maintenance was this high, but it could be that they have been catching up on maintenance after neglecting it for many years. The better condition a building is in, the longer it will last and protect the artifacts

¹²⁰ Energy Star, "Air Seal and Insulate with ENERGY STAR," Energy Star, http://www.energystar.gov/index.cfm?c=home_sealing.hm_improvement_sealing (accessed August 25, 2013).

and other objects inside. In the end, inspections and maintenance done to the buildings will help save money and preserve the materials stored in them.¹²¹

Proper artifact storage containers, proper furniture to house the artifacts, a building that is in good condition and a proper environmental monitoring system will significantly slow down the deterioration that may be threatening artifacts. When just one of the proper techniques is done, then the artifact deterioration can be slowed down, but it cannot be stopped. When more than one technique is being used, the deterioration rate of the artifacts will decrease even more. Therefore, more than one technique should be employed to insure the optimal survival of the artifacts for future generations.

¹²¹ Balloffet, 3.

Chapter 6: Budget

Obtaining funding to purchase preservation materials and for building upkeep is often a major problem for small and medium-sized museums, historical societies, and archives. These institutions, but especially smaller museums and historical societies, are typically run by volunteers with a few paid staff.¹²² Just like all organizations, these institutions have water, electricity, telecommunication, and heating bills every month. Some of these establishments may not own the building that they are using and therefore have to pay rent as well.

Paying all of these basic operating costs often leaves little left over for other expenses such as collection preservation activities, which can be down at the bottom of organizations' budget list. The traditional revenue sources for many of these institutions are private donors, admission fees (if they charge), and membership fees. Obtaining grants for specific projects is an additional source of revenue institutions can acquire as well as fund-raising campaigns.¹²³

Recently, the world has been going through a recession that has hit governments and businesses hard. Governments have been cutting spending to different areas and along with limiting hiring to certain fields. Businesses are doing the same.¹²⁴ Economically it follows that museums and historical societies are no exception. In fact, in the recent recession they are experiencing multiple impacts that include declining

¹²² Neil G Kotler, Philip Kotler, and Wendy I. Kotler, *Museum Marketing & Strategy; Designing Missions, Building Audience Generating Revenue and Resource*, (San Francisco: Jossey-Baiss, 2008), 214.

¹²³ Victoria Alexander, "A Delicate Balance: Museums and the Market-Place," *Museum International* 51, no. 2 (1999) 31.

¹²⁴ Geller and Salaman, "Museums and Other Nonprofits in the Current Recession: A Story of Resilience, Innovation, and Survival," 129-131.

revenues, increasing cost, and increasing demands.¹²⁵ These multiple impacts are creating financial stresses that a majority of institutions must endure. Organizations are managing these multiple impacts in many ways, including improving or expanding their marketing efforts, organizing special events, and fundraisers to bring in much needed revenue money.¹²⁶ A survey done in 2009 has indicated that though institutions are facing financial problems they are still managing to maintain, or in some cases increase, their services to their patrons.¹²⁷ In the end, no one knows how long the challenges brought on by this recession will last. Therefore, there is a current and very necessary need to find financial sources that are relatively constant each and every year.¹²⁸

Admissions:

The general public is one of the areas from which cultural institutions receive annual revenue. This income includes multiple sub-sources of revenue, ranging from private funders, admission fees, and membership renewal. This revenue source, according to Margee Hume and Michael Mills, can be a sizable fraction, in some cases up to 10%, of the institutions' annual revenue.¹²⁹ For those institutions that charge an admission or a rental fee, they would be forced to increase these rates.¹³⁰ As one museum leader noted, "People have less disposable income and are sticking closer to home, finding inexpensive things to do during their leisure time."¹³¹ American

¹²⁵ Gellar and Salamon, 130.

¹²⁶ Ibid, 136.

¹²⁷ Ibid, 132.

¹²⁸ Carole Rosenstein, "When is a Museum a Public Museum? Considerations from the point of view of Public Finance," *International Journal of Cultural Policy* 16, no. 4 (November 2010): 457.

¹²⁹ Hume, "Building the Sustainable iMuseum: is the Virtual Museum Leaving Our Museums Virtually Empty, 277.

¹³⁰ Alexander, "A delicate balance," 33.

¹³¹ American Association of Museums, *Museums & the American Economy in 2011* (Washington D.C., April 2011), 2.

Associations of Museum research proves that local museums, including small historical societies, have seen an increase in local and regional visitors to their institutions.¹³²

The upside to an increase in attendance by local and regional people is an increase in their admission revenue. Historical Society A, Museum B and Museum D indicated in my survey that part of their revenue is obtained by entrance fees. Historical Society A and Museum B obtain 5% of their income from their entrance fees. Museum D obtains 25% of its revenue from their entrance fees. This revenue goes to help finance their institution, maintain their buildings, or help preserve their artifacts. The downside to the increase in attendance is that revenues may not cover the increased costs to accommodate these extra visitors. This can be seen in R.N. Rosset's article, in which he states that entrance fees may cover only 5-10% of the overall costs.¹³³

Membership Fees:

Another source of revenue for institutions is a membership fee. Application for formal membership can be requested upon admission. Application forms may also be found online via the institution's website, can be filed out and sent in with the fee. Depending on what the patron may like, membership fees can range in duration from a year to a lifetime and be for either a single individual or a family. An example would be, the Clarence Historical Museum located in Clarence, New York has a scale of fees; charges \$15 for an individual yearlong membership, \$25 for a couple, \$30 for a family, and \$50 for a business. They offer one standard type of life membership for individuals

¹³² Ibid.

¹³³ RN Rosset, "Art Museums in the United States: A Financial Portrait," *The Economics of Art Museums*, (1991): 129-177, quoted in Margee Hume and Michael Mills, "Building the sustainable iMuseum: is the virtual museum leaving our museums virtually empty" (London: John Wiley & Sons, 2011), 277.

for \$150.¹³⁴ (Their membership form can be found in Appendix C as an example of what a membership form may look like.)

Membership's fees account for only a small fraction of their total revenue for most of the institutions responding to this question in the survey. Historical Society A receives 7%, Historical Society B receives 5%, and Historical Society C receives 2% of their overall revenue comes from membership fees. About half of the museums answered that their total profits comes from membership fees: 5% for Museum B, 10% for Museum D, and 1% for Museum E. Two museums A and C did not answer this question. There may be many reasons for them not to answer, including the fact that they do not offer memberships, they are unsure of how much is actually contributed towards their revenue, or they simply did not answer. The one archives that did respond to the survey does not charge membership fees because it is part of an university.

Donations:

Donations to institutions can be in the form of money or in the form of artifacts. Patrons have always donated materials to institutions, whether it is art, clothing, books, medals, papers, maps, etc. What patrons do not realize when they donate, is the amount of extra spending needed to preserve and house these objects. According to the survey, historical societies and specialized museums seem to have the most artifact donations given to them by patrons. The historical societies in the survey received their artifacts mainly through patron donations and estate bequests, with an artifact occasionally being purchased to complete a collection. Based on the survey responses,

¹³⁴ Clarence Historical Society, "Join Us," Clarence Historical Society, <http://clarencehistory.com/join.php> (accessed January 2013).

Museum B could be classified as a specialized museum focusing only in the field of film. This conclusion was established based on their answer to the survey question “How does your institution acquire new materials?” They stated their materials come from filmmakers, film distributors, and film production companies among others.

The archives in the survey, acquire their artifacts in a unique way. As part of a university, the archival materials received automatically through retention schedules and records management. In addition, they have special collections as part of their artifact holdings. These are obtained via estate bequests as well as through retired or retiring faculty who are familiar with the curricula-centric collections.

Patrons donate artifacts to museums and archives using several methods. The first is by coming directly to the museum with the artifact and asking if the museum will accept it. The second method is by contacting the museum with a list of artifacts they want to donate, asking if the museum will take them. The third and final method is the “drop and run,” where patrons just drop the artifacts off in the middle of the night and leave. This method is becoming more and more common for people, who no longer wish to have the artifacts stored/ kept at their homes. With a “drop and run” donation, the donor relinquishes all ownership to the museum.¹³⁵ Museums will sometimes decline an artifact due to its poor condition or if it does not pertain to the institution’s mission or collection policies.

For those donors who do make direct contact with the institution, the repository may ask the patron to donate money in order to help diminish the costs for storing and

¹³⁵ Laura Donnelly-Smith, “Dropping Off,” *Museum* (May/June 2011): 48-53.

preserving their artifacts. However, my survey indicates that this inquiry is rare.

Historical Society C stated that in the last 30 years, they have asked only four times for financial assistance for preservation. These four cases were for one large donation, an archive collection, and two high-value items. The archivist from Archives A stated that they do not traditionally ask for monetary donations to help preserve the gifted artifacts. However, a policy has been instituted to help fund the correct processing, preservation, and conservation of the donation. This policy is not geared towards the university's own archival material, but to the special collections that are being donated by non-university personnel. The museums in the survey do not ask for monetary donations for preservation to accompany the actual donation. This could stem from a fear of decreasing donations patrons if monetary requests were to accompany the donations.

Private Funders:

Patrons who enjoy the arts may become private funders of museums, historical societies, and archives. The primary funders for these institutions are typically individuals of the upper-middle class, small local business, and local foundations; rather than wealthy individuals. Wealthy individuals have also been known to make generous donations.¹³⁶ These donors typically fund a specific exhibit that is scheduled to be mounted in the future.¹³⁷ They may also donate money to help build a new section or a new building for the institution. In reward for the funding, the funder's name would be displayed in some way on the new section or building.¹³⁸ Institutions are becoming

¹³⁶ Victoria D. Alexander, *Museums & Money: The Impact of funding on Exhibitions, Scholarship and Management* (Bloomington: Indiana University Press: 1996), 46.

¹³⁷ *Ibid*, 10.

¹³⁸ BBC, "Tate Modern receives 10m donation towards new building," British Broadcasting Corporation, <http://www.bbc.co.uk/news/entertainment-arts-23158529> (accessed July 3, 2013).

more reliant on new funders; and these funders have begun to shape the exhibition policy and other policies made by the institution.¹³⁹

Sadly, as the older funders are dying off, the amount of funding that they provided has not been retained by new funders. This is caused by two counteracting trends: an increase in millionaires, along with today's tendency of "Baby Boomers" to give less to charity than their parents' and grandparents' generations.¹⁴⁰ Thankfully, there are those who donate, but will give only to exhibits that they prefer.¹⁴¹

My survey revealed that private funders donate more to their local historical societies than to their local specialized museums. Only two of the five museums in the survey responded that they receive money from private individuals. All three historical societies responded that they receive money from private individuals, ranging from 7% for Historical Society A, 5% for Historical Society B, to 15% for Historical Society C. Historical Society B, commented that this percentage can change yearly due to an unexpected bequest. The single archives in the survey, receive 20% of their funding through private individuals.

Government Funders:

Museums cannot feasibly operate only on membership fees, admission fees, and donations. Consequently, they are becoming more dependent on federal, state, or local government funders -- either from grants or tax exemptions.¹⁴² The tax exemptions will

¹³⁹ Alexander, *Museums & Money*, 10-11.

¹⁴⁰ *Ibid*, 24.

¹⁴¹ *Ibid*, 63.

¹⁴² Victoria D. Alexander, "From Philanthropy to Funding: The Effects of corporate & Public Support an American Art Museum, *Poetics* 24 (1996): 88.

continue with the institution as long as they are considered a public organization that serves the overall public; as well as tax codes do not change their policy in regard to their definition of what constitutes a public organization. Grants can be received from a variety of places, including local, state, and federal governments. Institutions continuously look for grant moneys as one way of funding. Once the grant money is spent, the institution must either stop the project or find other ways to fund the completion of the project.¹⁴³

Federal Grant Programs:

Grants given through the federal government are usually given through an “arm’s length” system. In other words, the money comes from an independent intermediary agency which allocates the funds directly from the government budget.¹⁴⁴ These independent agencies include the National Endowment for the Arts (NEA), the National Endowment for Humanities (NEH), the Institute of Museum and Library Services (IMLS), and the American Association for State and Local History (AASLH) to name a few. Grants are attained by institutions through a competitive application and peer-review process.¹⁴⁵ The importance of these federal cultural agencies is that they can reach many different institutions spread throughout the country to distribute their funds.¹⁴⁶ In 2006, a museum public finance survey was done to study what percentages of the different federal grants were given to museums, historical societies, and archives. The percentages ranged from 21% with the Institute of Museum and Library Services, to 8%

¹⁴³ Alexander. “A delicate balance,” 29-34.

¹⁴⁴ Ibid, 29.

¹⁴⁵ Rosenstein, 455.

¹⁴⁶ Ibid, 457.

from the National Endowment for the Humanities, and 4% from the National Endowment for the Arts.¹⁴⁷ The results of this survey revealed that the federal support dollars are concentrated by discipline and geography, with the NEA and NEH being more discipline-specific than the IMLS.¹⁴⁸

The NEA was established by Congress in 1965.¹⁴⁹ It provides money for purposes such as art purchase grants, challenge grants, as well as grants for conservation, construction, cataloging, and public training.¹⁵⁰ Some grants are through sub-programs. The Literature Fellowships, NEA Jazz Masters Fellowships, and NEA National Heritage Fellowships in the Folk and Traditional Arts are a few of these sub-grant programs. This grant awarding process can limit which institutions can apply for them due to the guidelines set up for each individual fellowship or grant. Funding opportunities can be found on their respective website under grants.¹⁵¹

Museum B stated in their survey that they have applied for many grants from many different foundations and agencies including the NEA. Though they did not specify if their grant from the NEA was approved, they did respond that most of their grants were approved. No other museums or historical societies in the survey indicated that they have applied for grants from the NEA.

¹⁴⁷ Institute of Museum and Library Services, *Exhibiting Public Value: Government Funding for Museums in the United States* (Washington, DC. December, 2008), 9.

¹⁴⁸ Ibid.

¹⁴⁹ National Endowment for the Arts, "About Us," National Endowment for the Arts, www.nea.gov/about/index.html (accessed January 2013).

¹⁵⁰ Alexander, *Museums & Money*, 31.

¹⁵¹ National Endowment for the Arts, "Grants: Apply for a Grant," National Endowment for the Arts, www.nea.gov/grants/apply/index.html (accessed January 2013).

The National Endowment for the Humanities (NEH) is similar to the NEA in that it was also created in 1965 by Congress as an independent federal agency that awards money to the institutions conveying lessons of history to Americans.¹⁵² The NEH supports exhibitions, workshops, scholarly research, and travel to view and research collections. It also provides fellowships for institutional personnel.¹⁵³ The NEH grants help strengthen teaching and learning in schools and universities, provide lifelong learning opportunities, and help preserve historic material, while providing access to cultural and educational resources.

Only one respondent to the survey, Museum C, indicated that they have tried for a grant from the NEH. They stated that their grant was not approved and did not divulge what the grant would have been used for if it had been received. Having only one museum out of all of the respondents state that they have tried for a grant from the NEH may mean that the other organizations do not fulfill the grants' requirements or that NEH has not had the right grants available for them. It may also mean that their grant writers do not have the writing skills needed to write at federal level grant.

The Institute of Museum and Library Services (IMLS) is a federal program which was established in 1996 by the Museum and Library Services Act. This Act combined the Institute of Museum Services with the Library Programs Office. In 2003, President Bush signed into law the Museum and Library Services Act of 2003, which reauthorized federal appropriations for IMLS. The reauthorization amended the act in several ways, including paragraph arrangement, definitions of words, constitution of board members,

¹⁵² National Endowment for the Humanities, "About NEH," National Endowment for the Humanities, www.neh.gov/about (accessed January 2013).

¹⁵³ Alexander, *Museums & Money*, 31.

elections, and voting. Also taking place in 2003 was the National Museum of African American History and Culture Act of 2003. This Act gave new authority for the IMLS to explore new ways of working with African American-centric museums. One of the most important aspects in this Act is to enhance the vitality and sustainability of these museums and to encourage scholarships which support careers in African American History.¹⁵⁴

A part of the IMLS national initiatives is a section entitled “Connecting to Collections,” which boosts a national awareness of the importance of caring for our treasures and emphasizes that these treasures are an important part of the American story.¹⁵⁵ The IMLS grant section covers a wider range of topics ranging from “Partnerships to Public Programs” to “Collection Management and Conservation.” In general, these grant requests can come from state or local governments or private nonprofit organizations that have tax-exempt status. Such institutions must be located with the United States or its territories. These requirements mean that a large portion of the historical societies and museums located in the United States can receive grants for the areas which need it the most. If they do not qualify for grants, they can become partners with organizations that do.¹⁵⁶ The requirements to apply for IMLS grants are listed on their website.

Two of the survey respondents, Museum D and Historical Society C, met these requirements and applied for grants. Museum D applied for the preservation of the

¹⁵⁴ Institute of Museum and Library Services, “About Us: Legislation & Budget,” Institute of Museum and Library Services, www.ims.gov/about/ims_legislative_timeline.aspx (accessed January 2013).

¹⁵⁵ Connecting to the Collections: A Call To Action, “About the Initiative,” Institute of Museum and Library Services, http://www.ims.gov/collections/about_the_initiative.aspx (accessed January 2013).

¹⁵⁶ Institute of Museum and Library Services, “Grant Applications: Eligibility Criteria,” Institute of Museum and Library Services, www.ims.gov/applications/eligibility_criteria.aspx (accessed January 2013).

photographs and manuscripts in their collection. They did not specify which grant it was, however it was approved. Historical Society C applied for and received a general operating support (GOS) grant for an archives reorganization and digitization project in the mid-1990s.

The American Association for State and Local History was established in 1940 as an independent agency folding the disbandment of the Conference of State and Local History. Their purpose is to promote the effort and activity in the fields of state, provincial, and local history both in the United States and Canada.¹⁵⁷ AASLH has a subgroup named the Small Museums Affinity Group. This group publishes an online newsletter that is open and free for all who sign up. In one particular issue, the newsletter focused on grants that are friendly to small museums, and it gives advice in how and what to search for, methods in applying, as well as a list of resources in which to locate the grants.¹⁵⁸ This type of information is excellent for museums, historical societies, and archives of all sizes.

Trouble in National Agencies:

The National Endowment for the Humanities funding allocations has fallen consistently from a high of \$11,090,547 in the 1992-1993 budget year to \$4,917,732 in 1997-1998.¹⁵⁹ There has been an increase of billions of dollars in funds towards the NEH since the low in 1998, but the most recent recession resulted in the government

¹⁵⁷ American Association of State and Local History, "AASLH: Yesterday and Today," AASLH, <http://www.aaslh.org/aboutus.htm> (accessed August 25, 2013).

¹⁵⁸ Janice Klein, "Small Museum Friendly Grants," *Big Ideas for Small Museums: The Newsletter for the AASLH Museums Affinity Group 2* (February 2011), <http://www.mynewsletterbuilder.com/email/newsletter/1410719137> (accessed January 30, 2013).

¹⁵⁹ Association of Research Libraries. *ARL Preservation Statistics 2006-2007*, Martha Kyrillidou and Les Bland (Washington, D.C., 2009) 6.

cutting spending to all areas, including the arts. Between 2004 and 2008, the NEH spent an average of \$140,322,000 yearly across their various programs, including grants, programs, and partnerships.¹⁶⁰ By 2010, the recession had slowed and more money was coming into the government; and NEH had its budget increased to over \$142,653,636 -- a decent increase from the previous six years.¹⁶¹ This would indicate that more institutions that have asked for grants have received them. Hopefully some of these grants have gone into the preservation of the artifacts.

The latest trouble for the national agencies is their 2014 budget. The House Appropriations Committee has approved a bill that would cut 49% from President Obama's proposed budget for the NEA, while also reducing federal funding to other cultural institutions and organizations.¹⁶² This cut would mean that roughly \$75 million non-profit dollars will be given to the NEA for 2014 a reduction of \$71 million when compared to their 2013 budget.¹⁶³ This decrease in funds will be felt across the country. The non-profit institutions and organizations will receive less grants and/or less grant money will be given out to those who have applied. The Senate Appropriations Committee has also released their draft of the spending bill for 2014 in which they give the full amount of \$154 million requested by President Obama though.¹⁶⁴ By having the two different sides of Congress wanting two different funding

¹⁶⁰ National Endowment for the Humanities, *Annual Reports 2004-2008* (Washington, D.C., 2005).

¹⁶¹ National Endowment for the Humanities, *Annual Report 2010* (Washington, D.C., 2011) 101.

¹⁶² Philanthropy Today, "Congressional Committee Oks Plan to Cut NEA Budget in Half," *The Chronicle of Philanthropy*, <http://philanthropy.com/blogs/philanthropytoday/congressional-committee-oks-plan-to-cut-nea-budget-in-half/72123> (accessed September 3, 2013)

¹⁶³ The U.S House of Representatives Committee on Appropriations, "Appropriations Committee Releases Fiscal year 2014 Interior and Environment Bill", United States Congress, <http://appropriations.house.gov/news/documentsingle.aspx?DocumentID=343384> (accessed September 3, 2013).

¹⁶⁴ *Ibid.*

amounts, it seems unlikely, as of this writing, that mutual ground will be found with the amount of sessions days left in the year to compromise and vote.

National grant programs continue to give funding to those who have applied and have been chosen to receive it. Based on my research's received responses, museums are more successful in receiving funding from federal programs than are historical societies. There could be many reasons for this, including the fact that many historical societies may choose to apply for state or local grants instead of federal ones. Even if this is the case, applying for federal grants can lead to a much needed funding for a project.

State Grant Programs:

State governments are also actively engaged in funding historical societies, archives, and museums. They provide support through multiple agencies for discipline-specific programs in the arts and humanities.¹⁶⁵ All states have an arts council that provide funding opportunities. In addition, each state has its own agencies that target specific areas in their state. Some agencies found in New York state are: New York State Council on the Arts (NYSCA); Documentary Heritage Program (DHP), administered by the New York State Archives; New York Council for the Humanities (NYCH); Preservation League of New York; Museum Association of New York, among others. These agencies target different institutions, depending upon their understanding of the institution's public value, mission and state-specific goals.¹⁶⁶

¹⁶⁵ Institute of Museum and Library Services. *Exhibiting Public Value*, 10.

¹⁶⁶ *Ibid.*

From the survey, funding from the state is not widely received by any of the historical societies. Only one, Historical Society A, stated they received part of their funding from the state, providing only 2.5% of their total budget. The other historical societies did not answer the survey question pertaining to state funding. One interpretation of this non-response is that they received minimal to no funding from the states they are located in. This could be a financial state-by-state decision made by their state legislations on how funding is given to the arts and/or culture organizations.

Museums getting funding from the state are a different story. The majority of them indicated that they receive funding from the state. Museum C replied that they receive 80% of their funding from the state. This was the highest amount received out of all of the surveyed museums. In contrast, Museums D and E received less than 5% of their funding from the state.

When it comes to grants given by state agencies, only one survey respondent indicated that they had applied. Historical Society A had recently applied to the Greater Hudson Heritage Network for a conservation treatment for a sash worn by a local soldier during the War of 1812. Unfortunately, they did not receive the grant and did not divulge the information as to why.

Federal and state agencies are not the only agencies in which museums, historical societies, and archives can apply for grants. There are private or specialized organizations that give grants to those that apply. Some of the survey respondents have applied and have received these specialized grants. Two examples of this type of grant are Museum A and Museum B, Museum A applied and was approved to receive a

grant from the Tawani Foundation. This foundation was founded by Col. J.N. Pritzker (retired) to help enhance awareness and understanding of the “citizen soldier,” while also preserving unique sites of American military history.¹⁶⁷ Secondly, Museum B also applied to several private or specialized organizations. They included the National Film Preservation Foundation, Saving America’s Treasures, the Parkard Humanities Institute, and Turner Classic Movies. As with their previously approved NEA grant; most of the above mentioned grants which they applied for were approved.

Tax Exemptions:

Tax exemptions are given to institutions which are public or private non-profit organizations. These organizations are exempt under the IRS section 501(c)(3).¹⁶⁸ To receive this exemption, they must be organized and operated exclusively for exempt purposes as stated by the IRS in section 501(c)(3). In addition, they are required to use an appropriate legal format such as a trust, corporation or an association designation. If the organizations fulfill these requirements, their next step is to attain a tax exempt status by submitting a signed and a dated application, whose form can be located on the IRS website.¹⁶⁹ This exemption from paying taxes allows organizations and institutions to allocate funding into preservation, conservation, programming, as well as paying for the more mundane costs of building maintenance and salary for paid employees.

¹⁶⁷ Tawani Foundation, “About Us,” Tawani Foundation: Distinction through Transformation, <http://www.tawanifoundation.org/about-us/>, (accessed June 30, 2013).

¹⁶⁸ Paul Arnsberger, Melissa Ludlum, Margaret Riley, and Mark Stanton, “A History of the Tax-Exempt Sector: An SOI Perspective,” *Statistics of Income Bulletin* (Winter 2008) 110.

¹⁶⁹ IRS, “Exemption requirements: 501 (c)(3) organizations,” Internal Revenue Services, <http://www.irs.gov/Charities-&-Non-Profits/Charitable-Organizations/Exemption-Requirements-Section-501%28c%29%283%29-Organizations> (accessed August 27, 2013).

The majority of the non-profit organizations and institutions are private museums. They comprise more than 70% of all of the museums in the United States. Historical Societies comprise a much smaller percentage of non-profit organizations.¹⁷⁰ Both museums and historical societies can obtain tax exempt status as long as they meet the required criteria and receive approval from the federal government.

Summary:

Overall, financing can be difficult for many institutions. There are many grants sites on the web to locate grants from both federal and state sources. Grants help out in the areas that may otherwise be neglected. For example, preservation of materials, to obtain lighting which does not deteriorate display artifacts, humidity controlled show cases, etc. Many of these grants must be annually renewed and applications submitted on a timely basis every year. It is crucial for institutions to explore all avenues of funding to help maintain these facilities and what they have to offer to the public

Tax exemptions can offer some financial relieve to institutions. If the museum, archives, or historical societies are not yet designated as a non-profit organization, obtaining the IRS status section 501(c)(3) will substantially afford these institutions to reallocate monies to other areas. The majority respondents to the survey, indicated they have tax exempt status for non-profit and have applied over the years for both state and federal grants. The respondents also indicated they are continually looking for and submitting applications for state and federal grants to help offset ongoing operating

¹⁷⁰ Rosenstein, 452.

costs as well as for improvements, programing, exhibits, etc. With donations not as frequent as in the past, institutions will have to re-market their public image in order for John Q. Public to become involved and interested in the institutions once again. Once their interest have been peaked than donations, both in artifacts and in revenue, will again pick up for the institutions.

Chapter 7: Preservation and Technology

Technology has become an integral part of today's world with people, governments, and businesses using the latest in communications and computer software to efficiently communicate and provide access to data. Keeping up with these technologies due to the technologies high costs and museums' tight budgets and the steep learning curve they require can be tedious.

Selection and use of the multiple and varied technologies available have created problems for institutions. These problems include the integration of the new technologies into exhibitions, effective person to person communication, and electronic media storage. This media storage includes floppy disks, compact discs (CD's), and hard drives.^{171 172}

To understand how museums, archives, and historical societies are dealing with the preservation of electronic media and data in their collections, a survey was done in 2003 by Carey Stumm as part of a master's thesis project. 205 institutions responded, and of these, 52 met Stumm's criteria as North American cultural heritage institutions. Nearly all 52 respondents stated that they have some form of electronic media material in their collection, but not all were preserving it. Only 22% stated that they were making it a priority to preserve it while another 46% were making only sections of their collections a priority.¹⁷³ Eighty percent stated that the primary cause of the low rate of

¹⁷¹ Carey Stumm, "Preservation of Electronic Media in Libraries Museums, and Archives," *The Moving Image* 4, no. 2 (Fall 2004): 41.

¹⁷² *Ibid*, 42.

¹⁷³ *Ibid*, 54.

preservation was the funding required.¹⁷⁴ On top of the finances needed for preservation, the knowledge and speed at which the electronic media and technology deteriorate is not well known by the majority of curators and archivists, creating more problems on the limited amount time and money these institutions have.¹⁷⁵ The combination of these two things does not bode well for the electronic media collections which will deteriorate like other artifacts in the collection.

Positive Examples:

There are positive examples of the use of the latest technology for preservation, public displays, and archival data for those that are on a limited budget. Below are three different libraries and archives that have plunged into the technology age with their limited budgets and which have created modern databases.

Example 1:

The Chelsea District Library was able to enter all of their 15,000 obituaries, onto a modern database that can be accessed and used by everyone via the Internet. The library accomplished this on a budget of \$5000.¹⁷⁶ They managed to do this by a multitude of steps. They first researched information pertaining to digitization methods. They then researched other libraries that have gone through the digitization process. Afterwards they determined which technology was best suited for their needs. The library director applied for a grant from the State of Michigan to help with the cost of the

¹⁷⁴ Ibid, 59.

¹⁷⁵ Teper, "Current and Emerging Challenges for the Future of Library and Archival Preservation," 32-37.

¹⁷⁶ Elizabeth Goldman, "Digitization on a Dime: How a Small Library and a Big Team of Volunteers Digitized 15,000 Obituaries in Just over a Year," in *Digitization in the Real World: Lesson Learned From Small and Medium-Sized Digitization Projects.*, ed. Kwong Borng and Jason Kucsma (New York: Metropolitan New York Council, 2010), 41-56.

project. However, this grant was denied. This meant that the funds for the project were limited to the \$5000 they already had set aside in their budget. The project manager developed a volunteer-driven plan in which unpaid volunteers would scan, enter data, and check the information. The library advertised for volunteers and received a large number of responses and volunteers willing to work on the project. Volunteers went through two training classes before starting. The volunteers were paired to have each pair with skills in sorting cards, data-entry, proof reading, and checking entries. Having each pair skilled in these made the work easier and faster for everyone.

With the data entry done by volunteers, most of the \$5000 went to the development of the database. This database was created by a programmer from another library who quickly designed the database with enough room for the growth of the collection. After 15 months, the obituary project was successfully completed, including everything ranging from the data entry to full access of the database available on the Internet. Different institutions can follow the Chelsea District Library's method of employing new technology with a small budget.

Example 2:

In 2006, the Colorado State University (CSU) received the university's historic photograph collection of 500,000 photographs, 5500 glass plate negatives, 750 magic lantern slides, and 7500 gelatin nitrate prints. This collection documented the history of the university along with the city of Fort Collins and the Rocky Mountain National Park. With the support of the university and university's library administration the library

developed a formal digitization plan in early 2007.¹⁷⁷ Funds were provided by the CSU Libraries to purchase digital scanners, and the CSU administration provided funds to hire students to help with the scanning process.

By September 2007, the library began to run a series of test scans to help determine the best procedure in creating the digital surrogates. These procedures were reviewed by the project archivist and scanning supervisor. Once all of the requirements were approved, full-scale scanning of the photographs began. In December 2007, the project was not progressing at the speed needed to achieve their goal. Three university students were then hired to help scan and bring the project back on goal. Throughout the project, jobs were continuously changing, and by the spring of 2008 university employees were replaced by students, whose work totaled 32 hours a week.

By mid-summer 2008 all of the glass plate negatives and magic lantern slides were scanned. The project leaders contacted the metadata librarian to review the scanned items. The items were then sent to the digital services librarian for her review. In August 2008, the reviews of the glass plate negatives and magic lantern slides were completed. The students and staff moved onto scan and enter appropriate data for the gelatin nitrate prints. CSU had successfully scanned over 500,000 items.

Example 3:

The final example that will be reviewed for new technology being used in the institutions is from Middle Tennessee State University. The university wanted to digitize

¹⁷⁷ Beth Boehlert's, "Digitizing Colorado State University's Historic Photograph Collection: a Case Study," in *Digitization in the Real World: Lesson Learned From Small and Medium-Sized Digitization Project*, ed. Kwong Borng and Jason Kucsma (New York: Metropolitan New York Council, 2010).

selected parts of their special collections with the focus on the popular, topical areas of the Great Depression, World War II and its aftermath, the Vietnam War and the student activism, African Americans, pioneering women on campus, the agricultural history of the neighboring county, and their seminal research on local rare plants. The university wanted to include all primary sources. The project was initiated without first knowing what would be found in the collections. They planned to adjust their expectations as new material surfaced.¹⁷⁸

To begin this project, the university library first researched the University of Pittsburg Digital Research Library programs along with the Indiana University-Purdue University Indianapolis (IUPUI) program in order to determine the best practices in digitization. From these research, the project budget was estimated and reviewed with their dean. The dean supported the project, and they began to purchase materials. The University Special Projects Committee gave them \$5000 to fund graduate students. The graduate students did the majority of the work and got paid through additional grants received for support for specific collections. The staff members involved were from different departments and could devote only small amounts of time.

The work began in the summer of 2007 with the installation of the purchased software CONTENTdm. The graduate students understood the software faster than the staff members and began scanning and selecting materials from the subject areas. Due to this fast understanding of the software, the students were scanning faster than the head librarian could check the work. As a result, simple errors were repeated before

¹⁷⁸ Ken Middleton and Mayo Taylor, "Collaborative Digitization Goes Local," in *Digitization in the Real World: Lesson Learned From Small and Medium-Sized Digitization Projects*, ed. Kwong Borng and Jason Kucsma (New York: Metropolitan New York Council, 2010), 435-449.

being caught. To slow down the scanning process the students were sent to the Albert Gore Research Center to search for specific types of materials. Good communication between the students and staff members was found to be important for staying on the project schedule.¹⁷⁹

By the summer of 2009 more students were needed, and the project librarian hired two master's level students from the Public History program. The project expanded to digitize not just photographs and documents, but also audio and video interviews. To continue the project, the university reached out to community businesses for grants and received \$1000 from the Middle Tennessee State University Public Service Committee and \$300 from the local Gannett newspaper. Overall, the work of the graduate students, librarians, and the support of the surrounding businesses helped make the project work.¹⁸⁰

¹⁷⁹ Ibid.

¹⁸⁰ Ibid.

Chapter 8: Conclusion

Museums, historical societies, and archives have a large amount of activity behind the public displays. There is handling, preservation, and proper storing of the artifacts that are not currently part of the patrons' viewing display. The preservation that is needed along with placing the artifacts in correct storage materials takes time, knowledge, and skilled workers. All of these require funding. These funds can be difficult to acquire for many of the museums, historical societies, and archives in this paper. This thesis was written to help those who need new ideas, methods, or success stories to help them start or continue their preservation of artifacts.

A detailed inspection and inventory of artifacts in the museum collection is first needed to understand the preservation needs. The inspection includes looking at the artifacts carefully to determine deterioration, storage materials used for the artifacts, and environmental conditions. The inspection will answer questions such as: Are the artifacts stored in archival-quality materials made for that artifact, or are the storage materials also deteriorating and need to be changed? Are the storage room shelves made of materials that will not harm the artifact? Are the temperature, humidity, light, and air pollutants being regulated, not only in the storage room, but in the whole museum to help ensure the life expectancy of the artifacts?

None of these steps can be taken in the preservation of the institutions' artifacts if there is no funding for preservation. Using different methods of saving money and acquiring funds will help the survival of the artifacts. A first step is to determine if the

institution has tax exempt status with the IRS. If it does not, then applying for it will help save money each and every year.

A second step is applying for all possible state and federal grants that pertain to certain areas needing assistance, such as acquisition and installation of environmental monitoring equipment. Grants are available for buildings maintenance and artifact preservation, as well as for education and advancement of museum personnel knowledge. In New York State there is a grant entitled "GO!" which helps send museum personnel to workshops and professional conferences.¹⁸¹ These conferences are an opportunity to network and form alliances with other museums throughout the state, while gaining knowledge about preservation methods, new educational methods for children and adult patrons, problems and solutions that other institutions have had with exhibition installations, and interacting with board members. The knowledge gained from these conferences can be brought back to each organization and implemented.

Museums should seek financial and volunteer assistance from their surrounding community charitable institutions and businesses. Having a high school or university nearby in which the students need community service hours or an internship can help keep the museum costs down. High school students needing community services hours can help with basic cleaning after getting the proper cleaning instructions and materials from museum. This cleaning can include washing windows, sweeping and vacuuming floors and dusting of flat surfaces throughout the museum. University students needing internship can help, after appropriate instructions, with accessioning

¹⁸¹ Museumwise, "Grants for Museum Advancement," Museum Association of New York, <http://www.museumwise.org/services/grants> (accessed August 21, 2013).

artifacts, inputting data into a database, basic cleaning of artifacts, supervising high school students, and researching the history of artifacts.

Technology can be used in the inventory and preservation of all types of artifacts. There are many software programs that are now available for museums, historical societies, and archives to maintain all of the information on artifacts in their collections. Such data includes condition reports, photographs, and perhaps most important of all, the description of each artifact. Also digital surrogates can be created. This mitigates physical damage caused by over handling. One such program is PastPerfect. The program can be bought for \$870, but there is a 20% discount for members of American Association of State and Local History on all of their products.¹⁸² Having a volunteer staff who know technology can reduce the cost of inputting the data into the programs. These individuals can also teach permanent staff who are less familiar with technology how to use the programs. This saves money for smaller institutions as they do not have to hire a professional programmer to install, input data, and teach.

Having membership to American Alliance of Museum and other museum supports groups can have other benefits as well. Many of these groups host webinars. Webinars are seminars that are taught over the web and cost less than a seminar at a university.¹⁸³ These webinars can be on anything museum related including preservation, business, and education. One such webinar is entitled “Small Museums, Libraries and Archives Advocating to Preserve Our Heritage;” in which presenters will

¹⁸² Past Perfect Museum Software, “PastPerfect Museum Software Version 5.0,” PastPerfect Software, Inc, <http://www.museumsoftware.com/products.html> (accessed August 23, 2013).

¹⁸³ An Encyclopedia Britannica Company: Merriam-Webster, “Webinar,” Merriam-Webster, Incorporated, <http://www.merriam-webster.com/dictionary/webinar> (accessed November 15, 2013).

discuss issues such as preserving historical records, copyright issues, and privacy concerns.¹⁸⁴ Webinars will be great for the small staff institutions to receive and discuss information without leaving their institutions or traveling long distances for information.

The survey was helpful bring the problems of artifact deterioration, storage, preservation, and funding into perspective. The survey showed that adequate funding for artifact preservation is a common problem for all organizations. It also revealed that if the institutional personnel put significant time and effort into methods to preserve their artifacts and also into finding additional funding for preservation, that they can be successful in both. There are many way in which small and medium-sized museums, historical societies, and archives can stretch their budgets to accommodate the costs needed for the preservation of artifacts, the maintenance of their buildings, and the acquisition of new technologies.

I hope this thesis has helped with the understanding of commonly-found artifacts deterioration symptoms and solutions, as well as simple methods to reduce the harmful environmental factors that can trigger and cause this deterioration. In addition, I hope that the different methods I have described to acquire the much-needed funding to acquire the preservation materials were useful. Successful funding and preservation of artifacts will insure that these artifacts are available for future generations of museum and historical society patrons, clients, and researchers.

¹⁸⁴ American Alliance of Museums, "Online Learning Opportunities," American Alliance of Museums, <http://www.aam-us.org/resources/online-learning> (accessed November 14, 2013).

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Appendix A: Survey on Current Practices of Small Museums, Historical Societies, and Archives

1. What is the approximate budget for your entire institution?
2. Approximately what percentage of that budget is used for?
 - a. Staff salaries and benefits
 - b. Preservation of materials
 - c. Educational programs
 - d. New displays
 - e. Building maintenance
 - f. Savings (a rainy day fund, or endowment building)
 - g. Other (please list)
3. What sources (in approximate % of total income) does your revenue come from?
 - a. Government
 1. Local (town, city, county)
 2. State
 3. Federal
 - b. Private organizations
 - c. Private individuals
 - d. Membership fees
 - e. Entrance fees
 - f. Endowment income
 - g. Others (please list)
4. If an artifact is donated, do you also ask for a monetary donation to help preserve that donation?
5. How does your institution acquire new materials? (Examples: from estate bequests, personal donations, proactively searching antiquities markets,)
6. Do you use simpler, lower cost, solutions to preserve materials? (Example: Using metal fencing to hang framed pictures on in storage) Please list a few examples of these preservation solutions.
7. Have you ever applied for a grant to help with the preservation?
8. If yes, what was the grant for specifically, and from what agency was the application made to?
9. Was the grant approved?
10. Please list any environmental monitoring equipment you have for displays and storage area.
11. May I cite your survey answers in my thesis?
12. Would you like a copy of my completed thesis?

Appendix B: Survey Responses

Archives A:

Survey on Current Practices of Small Museums, Historical Societies, and Archives

1. What is the approximate budget for your entire institution?

Our archives/special collections might be in a bit of unique position. We are an archives within a SUNY (State University of New York) institutional library, and we generally rely on that larger library for funding. The overall library has an approximate budget of 1.2 million/annum, and we generally request funding from the library director for products and other expenditures. The products are often rather mundane, such as housing materials (boxes, folders); and expenditures include hiring part-time staff (a personnel or temporary services expenditure), or software/database packages. Notably, within the last 18 months or so, we have been negotiating a move of the entirety of our archives and special collections. The rehabilitation of “new” (i.e., re-purposed) areas has been largely paid for by the library budget, but the majority of this has been levied against incoming returns from the Archives’ fundraising initiatives.

For the most part, we spend about \$2500/year on supplies and (roughly) \$7,500/year on non-professional personnel (i.e., students, part-time staff).

2. Approximately what percentage of that budget is used for:

a. Staff salaries and benefits

Within our SUNY institution, staff salaries derive from the overall institution (SUNY) – not so much the Library itself. The Library maintains a certain number of personnel “lines” from the College, both professional (e.g., faculty [librarian]) and staff (i.e., clerical), and these are paid from the overall College. We maintain about 3.5 FTE (full-time equivalent) personnel here, and the overall library has about 42 FTE. The questions below are based, fairly roughly, on our OTPS (“other than personnel services”) budget of, as above, the estimated, \$2,500. Staff salaries are “beyond” that figure.

b. Preservation of materials: 20%

c. Educational programs: 10% -- and figures are for education programs, such as lecture series, archives-centric events, that are not done in the course of everyday business.

d. New displays: 5%

e. Building maintenance: This funding is derived from the overall College/SUNY fund.

f. Savings (a rainy day fund, or endowment building): 0%. Essential or desired new material or products are allowed at the discretion of the Library director. Endowments derive completely from fundraising efforts.

g. Other (please list): The vast majority of other funding is used for the rehousing (60%+) existing unprocessed collections and for paying to correctly arrange and describe them. The A+D is a job requirement, so we do not figure extra costs into that, that being paid as staff time.

3. What sources (in approximate % of total income) does your revenue come from ?

a. Government: 0%

1. Local (town, city, county): 0%

2. State: (roughly) 75%

3. Federal: 0%

b. Private organizations: 0%

- c. Private individuals: 20%
 - d. Membership fees: 0%
 - e. Entrance fees: 0%
 - f. Endowment income: 5%
 - g. Others (please list): --
4. If an artifact is donated, do you also ask for a monetary donation to help preserve that donation?
Though we have not traditionally, I have instituted a policy to ask for monetary donations along with artifact and/or manuscript collections to fund the correct processing, preservation, and conservation of the material. Obviously, this is impossible with the archival material generated by the College itself; but funding is asked for with special collections that come from off-site. This is being met with somewhat mixed results, though donors seem to be beginning to understand costs associated with their gifts.
 5. How does your institution acquire new materials? (Examples: from estate bequests, personal donations, proactively searching antiquities markets,)
Archival material ought to come to us “automatically,” through retention schedules and records management work flows. This is not always the case, so we do actively solicit from within the institution. Otherwise, we do not actively pursue new special collections – the bulk of which come from estate bequests as well as (often retired or retiring) faculty who are familiar with our curricula-centric collections.
 6. Do you use simpler, lower cost, solutions to preserve materials? (Example: Using metal fencing to hang framed pictures on in storage) Please list a few examples of these preservation solutions.
Yes. In searching for funding to properly conserve artifact collections, we house them safely in a good of environmental storage as possible. As we move into new space, we are looking at cost-saving solutions such as the fencing as well as proper, if cheap, storage, etc. In processing paper-based collections, we generally follow the guidelines of “More Product, Less Process” (though we – and, well, everyone, mostly) have been following this all along, given the impossibility of truly “correctly” and absolutely processing material.
 7. Have you ever applied for a grant to help with the preservation?
No. As we move, though, I am looking at state and federal preservation grants.
 8. If yes, what was the grant for specifically, and from what agency was the application made to? N/A.
 9. Was the grant approved? N/A.
 10. Please list any environmental monitoring equipment you have for displays and storage area?
We have the tried and true hydrometer; and in the past I have used PEMs, which record and can present environmental data. Though not at this institution, I have successfully utilized these reports to justify creating better physical facilities.
 11. May I cite your survey answers in my thesis?
Yes.
 12. Would you like a copy of my completed thesis?
Yes!

Museum A:

1. What is the approximate budget for your entire institution? 370,000
2. Approximately what percentage of that budget is used for
 - a. Staff salaries and benefits 70%
 - b. Preservation of materials
 - c. Educational programs 5%

- d. New displays 25%
 - e. Building maintenance 0
 - f. Savings (a rainy day fund, or endowment building) 0
 - g. Other (please list) 0
3. What sources (in approximate % of total income) does your revenue come from ?
- a. Government 95%
 - 1. Local (town, city, county)
 - 2. State
 - 3. Federal
 - b. Private organizations Foundation 5%
 - c. Private individuals
 - d. Membership fees
 - e. Entrance fees
 - f. Endowment income
 - g. Others (please list)
4. If an artifact is donated, do you also ask for a monetary donation to help preserve that donation? No
5. How does your institution acquire new materials? (Examples: from estate bequests, personal donations, proactively searching antiquities markets,) donations primarily, and purchase
6. Do you use simpler, lower cost, solutions to preserve materials? (Example: Using metal fencing to hang framed pictures on in storage) Please list a few examples of these preservation solutions. No
7. Have you ever applied for a grant to help with the preservation? The Foundation has
8. If yes, what was the grant for specifically, and from what agency was the application made to? Tawani Foundation
9. Was the grant approved? Yes
10. Please list any environmental monitoring equipment you have for displays and storage area? Yes. Hobo data loggers for temp and rel humidity; Visible light meter for artifacts on exhibit.
11. May I cite your survey answers in my thesis? Yes
12. Would you like a copy of my completed thesis? Sure

Museum B:

1. What is the approximate budget for your entire institution? \$8,246,000
2. Approximately what percentage of that budget is used for
 - a. Staff salaries and benefits 30%
 - b. Preservation of materials 4% (Building Maintenance includes HVAC costs for all vaults. Preservation begins with conservation.)
 - c. Educational programs 4%
 - d. New displays 10%
 - e. Building maintenance 47%
 - f. Savings (a rainy day fund, or endowment building) 5%
 - g. Other (please list)
3. What sources (in approximate % of total income) does your revenue come from ?
 - a. Government
 1. Local (town, city, county) 30%
 2. State
 3. Federal
 - b. Private organizations 30%
 - c. Private individuals 20%
 - d. Membership fees 5%
 - e. Entrance fees 5%
 - f. Endowment income 10%
 - g. Others (please list)
4. If an artifact is donated, do you also ask for a monetary donation to help preserve that donation? No, financial support is required with Extended Loans.

5. How does your institution acquire new materials? (Examples: from estate bequests, personal donations, proactively searching antiquities markets,) **Gifts from donors, filmmakers and production companies; purchases from filmmakers or distributors (rare, but it happens), estate bequests, extended loans (rare again)**
6. Do you use simpler, lower cost, solutions to preserve materials? (Example: Using metal fencing to hang framed pictures on in storage) Please list a few examples of these preservation solutions. **Preservation begins with proper housing and conservation in temperature and humidity controlled vaults. Non-reactive containers, proper shelving, lighting and air circulation are all required. We try and maximize any space and do use such things as metal wire on walls to accommodate framed posters, photographs, etc.**
7. Have you ever applied for a grant to help with the preservation? **Always.**
8. If yes, what was the grant for specifically, and from what agency was the application made to? **Generally for film preservation; The National Endowment for the Arts, the National Film Preservation Foundation, Saving America's Treasures, The Louis B. Mayer Foundation, The Film Foundation, the Packard Humanities Institute, New York Women in Film, Turner Classic Movies.**
9. Was the grant approved? **Most were.**
10. Please list any environmental monitoring equipment you have for displays and storage area? **We use PEM readers in our vaults.**
11. May I cite your survey answers in my thesis? **Yes, but in general and not specifically attributed to GEH.**
12. Would you like a copy of my completed thesis? **Yes!**

Museum C:

1. What is the approximate budget for your entire institution? **\$140,000**
2. Approximately what percentage of that budget is used for
 - a. Staff salaries and benefits **70%**
 - b. Preservation of materials **5%**
 - c. Educational programs **10%**
 - d. New displays **5%**
 - e. Building maintenance **%10**
 - f. Savings (a rainy day fund, or endowment building)
 - g. Other (please list)
3. What sources (in approximate % of total income) does your revenue come from ?
 - a. Government
 1. Local (town, city, county)
 2. State **80%**
 3. Federal
 - b. Private organizations **20%**
 - c. Private individuals
 - d. Membership fees
 - e. Entrance fees
 - f. Endowment income
 - g. Others (please list)
4. If an artifact is donated, do you also ask for a monetary donation to help preserve that donation? **No**
5. How does your institution acquire new materials? (Examples: from estate bequests, personal donations, proactively searching antiquities markets,) **Loans and Donations**
6. Do you use simpler, lower cost, solutions to preserve materials? (Example: Using metal fencing to hang framed pictures on in storage) Please list a few examples of these preservation solutions.
7. Have you ever applied for a grant to help with the preservation? **yes**
8. If yes, what was the grant for specifically, and from what agency was the application made to? **NEH**
9. Was the grant approved? **No**
10. Please list any environmental monitoring equipment you have for displays and storage area? **Temperature and humidity control**
11. May I cite your survey answers in my thesis? **yes**

12. Would you like a copy of my completed thesis? Yes, but not necessary.

Museum D:

1. What is the approximate budget for your entire institution?
2. Approximately what percentage of that budget is used for
 - a. Staff salaries and benefits 50%, excluding outsourced Museum Stores and restaurant businesses
 - b. Preservation of materials 40% (includes compensation)
 - c. Educational programs 20% (includes compensation)
 - d. New displays – 2%
 - e. Building maintenance 10%
 - f. Savings (a rainy day fund, or endowment building)
 - g. Other (please list) utilities, security, overhead, fundraising, marketing, insurance
3. What sources (in approximate % of total income) does your revenue come from ?
 - a. Government
 1. Local (town, city, county) 0%
 2. State – less than 5%
 3. Federal - less than 5%
 - b. Private organizations less than 5%
 - c. Private individuals 10%
 - d. Membership fees 10%
 - e. Entrance fees 25%
 - f. Endowment income 18%
 - g. Others (please list) bequests; planned giving
4. If an artifact is donated, do you also ask for a monetary donation to help preserve that donation?
We suggest it.
5. How does your institution acquire new materials? (Examples: from estate bequests, personal donations, proactively searching antiquities markets,) Primarily from donations (80%); 20% from purchases.
6. Do you use simpler, lower cost, solutions to preserve materials? (Example: Using metal fencing to hang framed pictures on in storage) Please list a few examples of these preservation solutions.
We use standard preservation materials.
7. Have you ever applied for a grant to help with the preservation? Yes.
8. If yes, what was the grant for specifically, and from what agency was the application made to? IMLS for photographs and manuscripts
9. Was the grant approved? Yes
10. Please list any environmental monitoring equipment you have for displays and storage area? Heat and humidity controls and hygrothermagraphs, electronic monitoring
11. May I cite your survey answers in my thesis? yes
12. Would you like a copy of my completed thesis? yes

Museum E:

1. What is the approximate budget for your entire institution? \$560,000
2. Approximately what percentage of that budget is used for
 - a. Staff salaries and benefits 45%
 - b. Preservation of materials 0.01%
 - c. Educational programs (not counting salaried personnel) 0.06%
 - d. New displays 0.9%
 - e. Building maintenance 14%
 - f. Savings (a rainy day fund, or endowment building) 0%
 - g. Other (please list) The remainder is devoted to fundraising, marketing, and general operating expenses.

NOTE: At the Erie Canal Museum preservation of materials, educational programs, new displays and many other projects are conducted off-budget, mainly utilizing funding that is developed as needed or as possible by museum curatorial staff.

3. What sources (in approximate % of total income) does your revenue come from ?
 - a. Government
 1. Local (town, city, county) 35%
 2. State 1%
 3. Federal 0%
 - b. Private organizations 9%
 - c. Private individuals 33%
 - d. Membership fees 1%
 - e. Entrance fees 0%
 - f. Endowment income 10%
 - g. Others (please list) Various events, outreach programs, earned income, and museum shop
4. If an artifact is donated, do you also ask for a monetary donation to help preserve that donation? Yes, we do ask. But, to date, we have not received a donation of money for that purpose.
5. How does your institution acquire new materials? (Examples: from estate bequests, personal donations, proactively searching antiquities markets,) We are always on the lookout for new materials that fulfill our mission. Because our scope of collections is so narrowly defined, we find that donors usually locate us. Materials are usually donated but we do make purchases on occasion. Because there is no dedicated fund for purchases, the expense is raised by curatorial staff.
6. Do you use simpler, lower cost, solutions to preserve materials? (Example: Using metal fencing to hang framed pictures on in storage) Please list a few examples of these preservation solutions. We have a state-of-the-art storage facility next door to the museum. When it was constructed the best materials were selected.
7. Have you ever applied for a grant to help with the preservation? Yes. Several grants.
8. If yes, what was the grant for specifically, and from what agency was the application made to? Storage equipment, shelving, supplies, environmental monitoring equipment and HVAC.
9. Was the grant approved? Yes.
10. Please list any environmental monitoring equipment you have for displays and storage area? We use Image Permanence Institute PEM 1 monitors with Climate Notebook at locations throughout our facilities.
11. May I cite your survey answers in my thesis? Yes.
12. Would you like a copy of my completed thesis? Yes.

Historical Society A:

Survey on Current Practices of Small Museums, Historical Societies, and Archive

1. What is the approximate budget for your entire institution? 1 million
2. Approximately what percentage of that budget is used for
 - a. Staff salaries and benefits 65%
 - b. Preservation of materials 4%
 - c. Educational programs 4%
 - d. New displays 4%
 - e. Building maintenance 7%
 - f. Savings (a rainy day fund, or endowment building)
 - g. Other (please list) Insurance & Utilities 13%
Business Expenses 3%
3. What sources (in approximate % of total income) does your revenue come from ?
 - a. Government
 1. Local (town, city, county) 39.5%

2. State 2.5%
 3. Federal
 - b. Private organizations 17%
 - c. Private individuals 7%
 - d. Membership fees 7%
 - e. Entrance fees 5%
 - f. Endowment income 11%
 - g. Others (please list) Museum Shop & Rental Income 11%
4. If an artifact is donated, do you also ask for a monetary donation to help preserve that donation?
We do ask, but funds for collections care are not a requirement for donating.
 5. How does your institution acquire new materials? (Examples: from estate bequests, personal donations, proactively searching antiquities markets,)
95-98% of our new materials are donated. We have purchased some collections in the last decade to meet gaps in the collection.
 6. Do you use simpler, lower cost, solutions to preserve materials? (Example: Using metal fencing to hang framed pictures on in storage) Please list a few examples of these preservation solutions.
We incorporate lower cost measure whenever possible:
 - Making our own storage boxes
 - Creating/making our own dress forms for exhibition
 - Using pallets for oversize storage decking
 7. Have you ever applied for a grant to help with the preservation? Yes we have applied for conservation grants. Most recently, we applied to the Greater Hudson Heritage Network (formerly Lower Hudson Conference of Historical Agencies & Museums) for conservation treatment of a sash worn by a local soldier in the War of 1812.
 8. If yes, what was the grant for specifically, and from what agency was the application made to?
 9. Was the grant approved? No
 10. Please list any environmental monitoring equipment you have for displays and storage area? We use Climate Notebook and have monitors throughout collections storage and exhibition areas.
 11. May I cite your survey answers in my thesis? Yes
 12. Would you like a copy of my completed thesis? Sure

Historical Society B:

1. What is the approximate budget for your entire institution? \$9,000
2. Approximately what percentage of that budget is used for
 - a. Staff salaries and benefits 0
 - b. Preservation of materials 5%
 - c. Educational programs 5%
 - d. New displays 20% Additions to our collection.
 - e. Building maintenance 20% Our building is provided by town with heat and utilities included. We pay for improvement and repairs in our room plus alarm syste
 - f. Savings (a rainy day fund, or endowment building) 10%
 - g. Other (please list) 10% Computer equipment, maint & supplies web site fees.
30% expenses for fund raising events.
3. What sources (in approximate % of total income) does your revenue come from
 - a. Government 0%
 1. Local (town, city, county)
 2. State
 3. Federal
 - b. Private organizations 0%

- c. Private individuals 5% This can vary wildly from year to year. An unexpected bequest for example.
 - d. Membership fees 5%
 - e. Entrance fees 0%
 - f. Endowment income 10% We have about 40% of our financial assets invested in an indexed stock fund. which we bought we the market tanked. It has provided a good return. This is an unpredictable source over the short term. We can't expect that level of growth over the long term in the future.
 - g. Others (please list) 40% Returns from schedules fund raising events like fall festival or house tours or gardens tours; 40% Rent from a building we own. We rent it to the postal service for town post
4. If an artifact is donated, do you also ask for a monetary donation to help preserve that donation? No
 5. How does your institution acquire new materials? (Examples: from estate bequests, personal donations, proactively searching antiquities markets, ...) yes all three.
 6. Do you use simpler, lower cost, solutions to preserve materials? (Example: Using metal fencing to hang framed pictures on in storage) Please list a few examples of these preservation solutions.
 7. Have you ever applied for a grant to help with the preservation? No.
 8. If yes, what was the grant for specifically, and from what agency was the application made to ?
 9. Was the grant approved?
 10. Please list any environmental monitoring equipment you have for displays and storage area?
 11. Any other information that you believe is relevant that I did not ask for?
 - a. Our town had a pottery industry in the 19th century. Some pots today have values so we have a collection. These are easy to store. No preservation. All you need is shelves.
 - b. We also have some women's dresses dating from 19th century. These are kept off site in a store room with a dehumidifier.
 - c. Much of our collection consists of old photographs. Since these are irreplaceable and fragile we scan them into the computer and store back ups off site.
 - d. Another fact that might or might not be relevant to you. It's stated above that the town provides us with a room in an old town building for free. Heat and electricity and paid for by the town. This may not always be the case. If this changes our future would be uncertain since we do not have enough income to rent a place.
 12. May I cite your survey answers in my thesis? Yes.
 13. Would you like a copy of my completed thesis? We'd love it. Thank you.

Historical Society C:

1. What is the approximate budget for your entire institution? \$340,000 per year
2. Approximately what percentage of that budget is used for
 - a. Staff salaries and benefits 61%
 - b. Preservation of materials 4%
 - c. Educational programs 5%
 - d. New displays 2%
 - e. Building maintenance 5%
 - f. Savings (a rainy day fund, or endowment building) Currently 0% in annual operating budget—we do tend to send 1-2% back to general fund (savings account) from underspent budget line items per year.
 - g. Other (please list) 22% General Office functions and liability insurances. 1% Museum Store stock purchases.

*Note—the percentages above are only reflective of the individual line items in the budget for each category—in other words, it is the resource that staff have to work with. To get a true “reading” of the actual cost of any line item except “a” (Educational Programs, for instance), one would need to include the staff salary and benefits from each person who works in that area. Since we wear many

hats around here, that would take some time and analysis to complete. In this instance, I am going to assume what I have put down is adequate...if it is not, please let me know.

3. What sources (in approximate % of total income) does your revenue come from ?
 - a. Government
 1. Local (town, city, county) 75% total budget from a .1 (1/10) mill County-wide Millage (20 year up in 2013-vote in November 2012).
 2. State
 3. Federal
 - b. Private organizations 2%
 - c. Private individuals 18%
 - d. Membership fees 2%
 - e. Entrance fees We do not charge an entrance fee.
 - f. Endowment income 1%
 - g. Others (please list) 2% from Museum Store sales/publications
4. If an artifact is donated, do you also ask for a monetary donation to help preserve that donation? Only with a large donation—archive collection or high \$ items. Only 4 times that I know of in 30 years
5. How does your institution acquire new materials? (Examples: from estate bequests, personal donations, proactively searching antiquities markets, ...) Personal Donations, Estate Bequests, Governmental Sources (i.e. documents from City and County).
6. Do you use simpler, lower cost, solutions to preserve materials? (Example: Using metal fencing to hang framed pictures on in storage) Please list a few examples of these preservation solutions. Yes—Used supermarket shelving in collections areas.
7. Have you ever applied for a grant to help with the preservation? Yes
8. If yes, what was the grant for specifically, and from what agency was the application made to ? IMLS GOS Grant for an archives reorganization and digitization project in the mid-1990s.
9. Was the grant approved? No
10. Please list any environmental monitoring equipment you have for displays and storage area? Temperature and Humidity monitors (digital) in every storage room—not centralized.
11. Any other information that you believe is relevant that I did not ask for? No
12. May I cite your survey answers in my thesis? yes
13. Would you like a copy of my completed thesis? yes

Appendix C: Sample of Membership Application

This is the sample membership application for a historical society or a museum. It is shown here with the permission of the Director of the Clarence Historical Museum

MEMBERSHIP APPLICATION

Please complete, print, and return the application below to:

Clarence Historical Society

P.O. Box 86

Clarence, NY 14031

Membership Payment

\$15.00 Individual

\$25.00 Couple

\$150.00 Individual Life Member

\$30.00 Family

\$50.00 Business

Note: Under Internal Revenue guidelines, the estimated value of benefits received in exchange for your membership payment is not substantial. Therefore, the full amount of your payment is a deductible contribution.

NAME: _____

ADDRESS: _____

CITY: _____ STATE _____ ZIP CODE _____

BEST CONTACT PHONE NUMBER _____ EMAIL _____

HOW Can I HELP?

Staff Museum When Open/Assist with Tours

Work on Exhibits and Artifacts/Catalog

Office Help

PLEASE LIST ANY HOBBIES AND INTERESTS THAT MAY BENEFIT TO HISTORICAL SOCIETY.

WELCOME!