Artifacts Course Assignment

submitted by

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To

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1. Define and describe conservation (including preventative conservation, remedial conservation, and restoration) and the role it has (or should have print to see in your museum (archives, gallery, heritage institution). [3 pages maximum].

Conservation describes the environment in which artifacts are held that allows them to be used by individuals at present and in the future. In hopes of clarifying the definition of conservation, the International Committee of Conservation (ICOM-CC) held a conference in India to describe conversation as “all measures and actions aimed at safeguarding tangible cultural heritage while accessibility to present future generations. Conservation embraces preventative conservation, remedial conservation, and restoration. All measures and actions should respect the significance and the physical properties of the cultural heritage item (ICOM-CC, 2009). One important point this definition leaves out is that all conservation should be reversible. This definition is broad, referencing multiple methods of conservation that we may use for the collections we possess.

Preventative conservation can be defined as “the mitigation of deterioration and damage to cultural property through the formulation and implementation of policies and procedures for the following: appropriate environmental conditions; handling and maintenance procedures for storage, exhibition, packing, transport, and use; integrated pest management and emergency preparedness and response“ (al-Saad, n.d.). ICOM takes this further by describing preventative conservation that does not interfere with the materials and structures of the items and does not modify their appearance (ICOM-CC, 2009). Taking both of these definitions provide us with a refined framework to continue our discussion. An example of this would be constructing a form for transporting an artifact so that no damage occurs during transportation. Having a strong definition of preventative conservation will allow us to distinguish how it differs from remedial conservation.

Remedial conservation = aims to reinforce the structure of an artifact or stop damaging processes that are currently causing degradation of an artifact (ICOM-CC, 2009). Remedial conservation may or may not modify the appearance of the artifact. The main idea of remedial conservation is to prevent further degradation of an artifact so that it can be shared with future generations. An example of remedial conservation would be darning a knit garment where a hole has formed, which would prevent the knit garment from unraveling.

Restoration is another term that is used when an artifact has undergone significant deterioration and must be respectfully modified so that the artifact is not permanently lost so the public (ICOM-CC, 2009). Most actions in restoration modify the appearance and structure of an artifact. An example of this would be painting a portion of a painted wardrobe where the paint has worn off over time.

Finally, it is important to note that when we are practicing conservation, the defined terms above may overlap. ICOM gives an example of removing varnish can be seen as both remedial conservation and restoration (2009).

The Brant Museum and Archives has been collecting artifacts since 1913, nearly 70 years before the creation of museum standards. This creates a unique set of challenges and opportunities related to conservation of over 70,000 artifacts in this environment. The building is about 150 years old with little maintenance and upgrading of rooms to make a less than ideal environment for the storage of artifacts with high fluctuations in temperature and relative humidity.

The last component involves the human resources aspect assigning responsibility for maintaining the conservation of artifacts. There are various levels of responsibility for a wide range of stakeholders including the curator, other museum staff, and the community.

 The curator undoubtedly has the highest standard to maintain as they are working with the collection on a regular basis. The curator can perform the roles of maintaining the museum standards for the institution, maintaining the storage of the collection, and be the driving force for any conservation effort at the institution.

The curator at the Brant Historical Society is responsible for maintaining the museum standards. While conservation efforts are minimal, they should be enhanced in order to maintain the collection in a reasonable state for the future. According to the CMOG (2015) standards, we require a full time person in charge of the collection. We do not currently have a full time person, but one full time employee responsible for this standard on top of other administrative duties.

The curator is also in charge of the collection storage spaces. Ensuring that the collection is stored under proper temperature, relative humidity, and light standards is likely the largest source of preventative maintenance that can be done in the museum. The Brant Museum & Archives uses HOBO devices to record environemental conditions throughout the building. These pieces of equipment need to be checked on a more regular basis.

The curator is the most qualified person who has received additional training, but not an expert in conservation. This curator should have additional training to enhance their skills so that they can perform preventative conservation, remedial conservation, and restoration. The curator can also play the role of educator in orientation sessions by teaching other employees, volunteers, and the public the role that they can play in conservation. The curator is also the creator of exhibitions generated by the institution and is responsible for achieving exhibition standards.

 Other museum staff can play a large supporting role in artifact conservation. While not in most job descriptions, all museum staff regularly interact with artifacts and therefore bear responsibility in the conservation of artifacts. As a staff member, expectations of basic care, handling, and moving of artifacts should be covered during their orientation with the curator. Finally, museum staff should mainly focus on preventative conservation and only perform remedial conservation under the direction and supervision of the curator.

 The community should be at the centre of the collection as it keeps those stories to preserve and share them for the future. The current generation needs to treat artifacts with respect that they interact with on a regular basis. Museum staff and the curator deliver basic education to the public on their role in ensuring the conservation of current and future artifacts.

1. What is the relationship between relative humidity and temperature?  Examine the environment in your institution and name 4 sources that can contribute to incorrect temperature and relative humidity and what the effect could be to collections.

 The inverse relationship between relationship between relative humidity and temperature is well known and displayed in Figure 1. As temperature increases, the relative humidity decreases and as the temperature decreases, the relative humidity increases. Both temperature and relative humidity are crucial factors that may affect our museum collections. A stable environment is the best for storage of artifacts that we possess in trust for the community.

 Several rooms in the museum have less than ideal storage scenarios. Each of these storage locations showcases a lack of temperature and relative humidity sources that could be considered in improving the storage of the collection.

 The Brant Museum and Archives was built in a number of stages from the 1850 through until the 1960s. The original building was constructed around 1850 and is the southern most portion of the facility and was a home for prominent druggists and the Rev. William Cochrane. This portion of the building has baseboard heating and knob and tube wiring. It is important to note the Brantford’s power sytem originally functioned on a 120 Hz system as oppose to the standard 60 Hz systems that we use today. Some of this original wiring may be in this portion of the building. This portion of the building likely has no insulation in the walls. In the winter people entering storage areas have reported seeing their breath condense in the air. The original building contains administrative spaces on the ground floor and storage areas on the second floor.

Figure - Relationship between Temperature and Relative Humidity. (Taken from Wikipedia - https://commons.wikimedia.org/wiki/File:Relative\_Humidity.png.

 A small addition to the north in 1911 by the Verity family has baseboard heating and more modern wiring. This portion has cinder block construction and no known insulation. During repeated cold spells it is known to get as low as 10°C, but the room does not respond to high heat weather in the summer. This is the storage location for the archival materials.

 A much larger edition was added in the 1960s after the museum was awarded a WinOntario grant to expand the building. This portion of the building has an electric heater and has modern fiberglass insulation. This includes the programming room and kitchen on the ground floor and the exhibit spaces on the second floor. Recently, an air conditioning unit was discovered on the back side of the building, but nobody knew how to turn it on.

 A final portion of the same addition was the creation of the attic. This has modern drywall and an HVAC cooling system. The attic is likely the best climate controlled environment in the facility. The attic contains storage of artifacts and a smaller attic that likely contains bats.

 The fact that the original building has no insulation contributes to significant temperature fluctuations for storage areas on the second floor. Portions of these storage areas contain wood artifacts where the swings in temperature could change the relative humidity in the room causing swelling or cracking. Parts of these storage areas also include metal objects, which continual changes in temperature can cause small stress fractures over time.

 The archival area also has incorrect temperature and relative humidity storage conditions. Cooler temperatures are generally better for preservation so this is generally thought to be better for artifacts. However, this also introduces higher humidity conditions, which is would introduce mold growth into the paper artifacts.

 Not knowing how to turn on the air conditioning unit on in the back of the building significantly can affect the high temperature storage locations on the second floor. This is a third source of incorrect temperature affecting the facility. We subsequently conducted a search and have now rectified this situation.

 A final source of incorrect relative humidity exists in the attic. Attics are notoriously known to be the warmest location in a building, especially in the summer months. To correct this, an HVAC unit was added into the storage area. This is a water cooling unit that increases the relative humidity of the attic.

1. Describe the lighting used in one of your exhibit or storage areas.  Is it the most preferable according to conservation standards?  What is the impact of your current lighting method on the collections you are responsible for?  How can you improve on your current lighting method, give at least 3 examples.

 The programming room is the largest single room in the museum and has two contrasting lighting systems that could be used for exhibits. The room was originally installed with long florescent tube lighting that is not filtered. As a result, this lighting source would expose artifacts to high levels of UV light with a peak at a specific wavelength. The second type is a series of track lighting that have halogen bulbs. This introduces the element of increased heat to the room, high UV levels from multiple wavelengths of UV light, and high levels of infrared light. For this reason, the florescent lighting would be the preferred type of lighting for the exhibit, even though we use the halogen bulbs.

 This is consistent with our conservation standard for the Brant Historical Society. The high levels of UV that the artifacts will be exposed to will result to minimal damage while the current exhibit has a timeline of one month. After this period, artifacts should be preserved under normal storage lighting conditions prevalent throughout the remainder of the museum.

 There are a number of ways that we could improve lighting in the exhibit space to mitigate these high UV conditions. One way would be to use the florescent lighting existing in the room and install UV filters to minimize the damage to artifacts on storage. Another way to improve the existing halogen lighting is to focus it over a long distance. CCI Notes 2-3 (2015) has a table showing how lux levels decrease exponentially as distance increases. Refocusing the lighting by pointing it on objects further away may minimize the damage from UV lighting. A third way that we can improve the lighting is by installing motion sensor lighting systems to minimize the length of exposure time to unfavorable light conditions. This would be the most expensive solution in improving the light levels in exhibit areas.

1. Consider the three methods of how pollutants can reach artifacts (airborne, intrinsic and transferred by contact) and list 3 sources of where pollutants can be found in your museum and how you can eliminate or control the problems that pollutants can cause.

 One of the largest airborne sources of pollutants that can affect artifacts is dust. ICOM (2005) notes that “the highest covering rates were found beside visitor routes” and one of our former exhibit spaces was located next to the entrance of the museum. To minimize the dust accumulation on artifacts, we can conduct cleaning of storage rooms on regular basis. Regular changing of the filters in the electric heater could minimize the circulation of dust in the museum. When inspecting the furnace, we changed the filter to help prevent dust accumulation.

 The Brant Historical Society has a collection of original Cockshutt Plow films (1997.74.1). These are made of cellulose acetate which is an example of an intrinsic pollutant. When these are stored in improper conditions, they can start to degrade and emit a vinegar smell. An attempt was made to convert this film to video tape in order to preserve a copy of the films. The films continue to degrade and future conservation will be required on the video tape to covert it to modern standards. However, every time a copy is made some of the information or the information is converted into another format, some of the information is lost as these are not perfect processes.

 This is why preservation of the original form is very important. The current storage of these cellulose nitrate films are in the archival room at room temperature and are off-gassing next to paper documents. CCI Note 15/3 (2015) suggests that household refrigerators may have the proper conditions for storage of 10°C and 40-50% relative humidity.

 There are a couple of proposals that we could consider to improve problems caused by this intrinsic pollutant. We could have a refrigerator drive, try to find a donated refrigerator, and test it with a HOBO to verify the machine can attain appropriate environmental conditions. We could also approach a local refrigeration company to donate, or provide at cost, a refrigerator with appropriate storage conditions. When finding a refrigerator, we should also consider the energy efficiency of the storage units as they could dramatically increase the operating expenses of the organization.

 Pollutants transferred by contact are much more rare at the Brant Historical Society. In 1902, a Kermesse celebration occurred in Brantford and an event similar to the modern day International Villages Festival. While most cultures featured in the Kermesse focused on traditional white ancestry, there was also an inclusion of Japanese culture. To commemorate this event, a series of photos were taken, and put into an album that has been donated to the Brant Historical Society.

 When this artifact was found, it was a good example of preventative conservation in action. The artifact was wrapped and bound providing good support for the frail spine. In between pages were specially cut pieces of tissue paper. Opening up the album, we discovered that the photo has been transferred by contact onto the back of the previous photo as seen in Figure 2. These photos have not been digitized and the cardboard backing of the photo has warped. We returned the album to its original state of where we found it.



Figure - Three pictures of the Kermesse album showing the album open (top), the backing with a label that has transferred the image on the opposing page by contact (bottom left), and the album with its preventative conservation layer of acid-free tissue paper.

1. Describe the process of how you would implement an Integrated Pest Management program in your museum (consider the 7 aspects of IPM).  Give 2 examples of common museum pests that you have encountered in your museum.  What material(s) are they most attracted to? [2 page maximum]

 It is interesting to note that the Brant Historical Society appears to have no documentation to support active Integrated Pest Management (IPM) program. A fully documented IPM should be developed within the strategic plan cycle to create a record of what pest management is occurring at the museum. We will go through the 7 aspects of IPM to propose and highlight crucial decisions that should be considered in the development of a documented IPM program.

 Monitoring has occurred on an as needed basis in the past, but this monitoring has not been documented as actions of an IPM program. This should be integrated into the IPM as sometime emergency pest management needs to occur, such as when a live bat is discovered on the floor. On top of these emergency pest management situations, regularly monthly or quarterly inspections should be done with a standardized form to deal with preventative pest management strategies and to ensure the IPM program is functioning properly.

 The Brant Historical Society has a Building Maintenance Plan that is regularly been requested by other organizations. This Building Maintenance Plan should be reevaluated, improved, and integrated into the new IPM program.

 The Brant Museum and Archives possesses a series of gardens surrounding the facility and a circular driveway around the facility that borders the east and north walls. The garden beds have been poorly maintained in the past few years. As a result, volunteers have contributed to the role of managing the garden beds and ensure the front of the facility is managed. This frontage is considered to be the largest potential source for pests to enter the facility. Inside the facility, high traffic areas receive the most attention and storages areas are cleaned on a minimal basis as they are more rarely accessed. All areas, including exhibits, are dusted on a regular basis.

 All of these examples demonstrate that we have made an effort to implement the housekeeping aspect of the IPM. The gardening is documented by volunteers on our volunteer hour log and recorded into Past Perfect for tracking purposes. Interior housekeeping hours are documented by our cleaning staff and those hours can be found in our payroll records. Currently, this is one of the best standards of the IPM program with maintained documentation.

 The next aspect of the IPM program is the identification of pests in the museum and its collection. The fifth aspect of an IPM is taking treatment action to rectify the identified pests from the previous process.

 These two components should be together on another form that can be filled out and one copy placed with the record of the artifact and another copy in the IPM program manual. This way both sets of information have a back up in case one is disassociated from its intended place. This form should include determining the type of pest, proposing a method of elimination of the pest, recording when the treatment is performed, and documenting the removal of the pest.

 The preferred and most cost effective method for the Brant Museum and Archives is likely the cold temperature method. In planning for the new facility, it should be recommended that a connected walking refrigeration system and freezer system to be established to allow for the treatment are artifacts. CCI Notes 3/3 (2015) has a comprehensive and easy method that can be developed and documented to form a critical part of the IPM program.

 Another point highlighted by CCI Notes 3/3 (2015) is the cooling rate that can be applied to sensitive artifacts. One concept not explored is the staging of artifacts by this method to reduce thermal shock. As noted during our course, many of these systems are borrowed from the food services sector and their integrated pest management system. Some frozen items need to be thawed in the walk-in refrigerator for 4 to 48 hours. This method could be explored to reduces thermal shock to some sensitive artifact before and/or after treatment.

 The penultimate step in the IPM is the education component. This is a portion where the curator or expert in charge of the integrated pest management program can educate other staff in dealing with identification of pests. This will allow other staff to report pests as soon as they are discovered so they will become an active component of the IPM program.

 The final step in the IPM is the evaluation of the program itself. The IPM should include a proposed a timeline for when the evaluations should occur. This evaluation should look a successes achieved, active improvements being made, and an action plan for implementation of new or forgotten components of the program.

 The above outlines some of the items that should be incorporated in the integrated pest management program. These forms that extend from the development of the IPM plan should be developed into a resource that could be used as a model for similar sized museums.

 Most pests that occur at the Brant Museum & Archives have an indirect effect on the collection. The first pest encountered was a bat. These bats are thought to live in the upper attic where no collections are stored. Their dropping could pose a hazard to the artifacts store in the attic.

 A second pest encountered in the museum were mice. These have been heard running through the wall in the old section of the house and one was found in the kitchen garbage one morning. There is a mouse trap in the attic with a dried out piece of cheese that has never caught a mouse. This leads us to conclude that they have never been in the attic. This pest is of concern as mice may chew on some of the wooden artifacts and their excrement can create a hazard in storage areas.

1. Name and describe 2 examples of artifacts that may be considered hazardous for your collection.  What protocols would you take to ensure the safe handling and care of these artifacts?

 The Brant Museum & Archives possess a small collection of armaments including shell casings, grenades, and rifles. The entire collection was gone through by the Brantford Police Service and local military historian Rick Shaver. Only people who have applied for and received their Authorization to Transport Restricted Firearms and Prohibited Firearms should have access to these collections as they are potential hazards of explosions when handling. Some of the artifacts were moved to the Canadian Military Heritage Museum as a loan as when we did not have a person with the authorization at the time. We current have the Vice President of the Brant Historical Society who has military service and possesses the proper authorization so this hazard can be dealt with properly. Personally, I would never handle these artifacts.

 The Brant Museum and Archives also has some large artifacts in a glass enclosure outside of the museum. One of the artifacts in this display case is the original bell for the Brantford Town Hall. The cement pad of this enclosure is also covered with black mold posing a health and safety hazard. One of the ideas in the relocation plan for the museum was the reinstallment of this outside the museum as a centerpiece of the community museum. However, it is estimated that the bell and its supports weigh nearly 6 tons. Because of its weight and size this artifact also poses a physical danger. When ensuring safe care and handling of this artifact, one would need to use Personal Protective equipments like Tyvek suits, thick gloves, and a respirator to deal with the environmental hazards. Moving this artifact would require the dismantling of the glass enclosure and a crane to lift the artifact and load it to a flatbed for transport to the new museum. Once on the flatbed, it should be stabilized and secured for its journey. When arriving at the new location, we will either have to use the crane to transport it inside the building or come up with some other smaller scale system to deal with this artifact and the hazard it poses with its large size and weight.

1. Complete conservation documentation (written and visual) on one inorganic, one organic, and one composite artifact selected from your collection.  Describe the method you would use to complete labelling on each object.

 The conservation documentation can be found in Appendix A and photos taken are in Appendix B.

 The McAllister Bible (X2013.317.01) was one of the first objects that I processed when trained on the accessioning of an artifact into the collection. In affixing the number to the object, I used a non-pointed, HB lead pencil. After having the correct resources, I lightly wrote the number on the last page of the bible in the bottom left hand corner. When applying the number, I used the support of table to avoid indentation and ensured that I was not pressing to hard.

 The beverage urn (959. 25.1) has 4 removable components and thus needs 4 labels on each removable part. Each of the 4 labels are applied discretely to the bottom of the artifacts in a place that receives minimal wear and handling.

 During our course, we were notified not to use nail polish when placing numbers on artifacts. A bottle of nail polish is usually around 12 mL and costs about $5, while Acryloid B-52 in acetone is available in 30 mL quantities and costs about $15. When you consider the price differential it is rather minimal.

 Firstly, I applied a small amount of Acryloid B-52 to the proposed location for the label, allowing the first layer dry and adhere to the artifact. After a couple minutes, I would test the first layer with my finger to ensure that it has gelled before neatly and legibly writing the accession number with an archival pen. After waiting several more minutes for the ink to dry, I applied a final layer of Acryloid B-52 to seal the number in place and let that dry. If at any point in the 3-layer process the label becomes compromised, I would remove the label and start again with the first step of the 3-layer process.

 When considering the water pump (954.28.1), this object is so large that affixing and looking for a label like that applied to the beverage urn would not be reasonable. Alternatively, using the method above and recording the location of the accession number into the past perfect entry may mitigate this problem. Because of the size of the object, I would write the accession number onto a paper label and tie and affix this to the object in a place that is easily visible to staff, but not to the public viewing the artifact.

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