Introduction

In the spring of 2014, I interned at the Curation Lab of the Historic Sites Division of the Texas Historical Commission (THC). I chose this internship to learn more about historical archaeology and the curation of archaeological materials, aspects of archaeology with which I had only rudimentary experience through textbooks. During the course of my internship, I worked exclusively with material from Fort Griffin State Historic Site, one of the twenty historic sites administered by the Historic Sites Division. In this report, I intend to inform the reader about the THC; Fort Griffin; aspects of curation including the “curation crisis”, which I will discuss through the lens of my particular internship experience; and finally, discuss briefly the future direction of materials curation and archaeological inquiry.

Preservation, Protection, and Promotion: A Brief History of the THC

The Texas Historical Commission (THC) is a broad state agency which oversees anything concerning Texas history. According to the timeline available on their website, the agency was created in 1953 as the Texas State Historical Survey Committee and placed in charge of Texas historical projects. (www.thc.state.tx.us) The Committee worked on preservation of historical sites through county level committees and started the Historical Marker program in 1962. In 1963, the Committee’s powers of preservation and protection were expanded; and when the U.S. Congress passed the National Historic Preservation Act in 1966, the Committee was given the responsibility of enacting the federal provisions in Texas. In 1969, the office of the State Archaeologist was transferred to the Committee. In 1973, the
Committee’s powers and responsibilities were expanded again and the Committee was renamed the Texas Historical Commission. Over the next few decades, the THC engaged in various projects, including the preservation of county courthouses, revitalization of failing downtown districts through the Texas Main Street Program, and the establishment of the Texas Heritage Trails Program to promote heritage tourism, to name only a few.

The THC is composed of eight Divisions: Administration, Archaeology, Architecture, Community Heritage Development, Historic Sites, History Programs, Public Information and Education, and Staff Services. (www.thc.state.tx.us) The youngest Division is the Historic Sites Division, which was created in 2007 when control over 18 Historic Sites was passed from the Texas Parks and Wildlife Department (TPWD) to the THC. The transfer brought the number of Historic Sites under the jurisdiction of the THC to 20 in all. The Historic Sites Division is responsible for the maintenance and improvement of these sites as well as for public education about the sites, including exhibits, and for the collections of objects associated with each site including archaeological material as well as furniture, textiles and documents. When these objects are not on display at the various sites, they are stored at the repository in Austin. The curation of these objects is the responsibility of the repository staff and interns.

The repository in Austin is closed to the public to guard against theft and damage to the objects stored there. Both the outside door and the doors to areas containing site collections have restricted keycard access. The staff at the time of my internship consisted of Laura DeNormandie, the Chief Curator, two other members of staff who worked on a contractual basis, and the custodian, who also helped with receiving larger shipments of objects.

The repository is divided into four sections. When entering the building, the first section contains the offices of employees and interns as well as a conference room and break room. The second section is the curation lab. The curation lab has two long tables in the middle of the room so that objects can be laid out
as they are being worked with.

Figure 1: Curatorial Assistant, Jamie Royer, working in the curation Lab. Fort Griffin State Historic Site collection fills the shelves on the back wall. Photo by Matt Larsen.

The back wall has cabinets and countertop space, which also runs along one side wall. Above the countertop space are four levels of shelves running the full length of the walls. To the back and left is a small preservation lab area for the in-house preservation of small objects, complete with an area with a hood and exhaust for handling toxic chemicals or where electrolytic rust removal in acid baths can be performed. During my internship, the space went largely unused, however, because there was not a staff
At the back of the curation lab, across from the preservation area, are the doors to the warehouse storage space, which takes up the majority of the space at the repository. The warehouse storage area consists of four separate areas. To the right, running the full length of the storage room, is what looks like a bright orange shipping container. In fact, it is two separately climate controlled storage rooms, one for textiles and the other for archaeological collections. To the left is another bright orange climate controlled room
for the storage of paper documentation as well as maps.

Figure 3: The warehouse storage area. To the left is the Archives storage vault, to the right is the Textile and Archaeology storage vault. Ahead and to the left is Furnishings storage. Photo by Matt Larsen.

The rest of the space is not separately climate controlled and consists of many shelves containing mostly furniture from the several houses controlled by the Historic Sites Division. At the back of the storage space are doors leading to receiving. The receiving area is a large area with a large roll-up door for delivery trucks. Received objects are first stored here until it is determined they are safe to bring into the main storage room. Received objects are thoroughly checked for pests, mold, and anything else which could have a deleterious effect on the other stored objects.

The purpose of the four section layout of the repository is to isolate the collections from outside conditions and to prevent deterioration as much as possible. Storage is isolated from receiving at the back of the building and from the curation lab and offices at the front of the building. Staff generally stays out of the storage areas unless something needs to be removed or replaced. When objects are being handled
and worked with, it is generally only done in the curation lab. Other work and research is usually done in the office area. The climate of each of the storage areas is separate from the others and remotely controlled from the head curator’s office.

Figure 4: Archaeological storage vault. Photo by Matt Larsen.

A Frontier Outpost at the Spearhead of Westward Expansion: The History of Fort Griffin

As I dealt solely with material from Fort Griffin State Historic Site, it behooves me to give a brief history of the site. Fort Griffin was commissioned in 1868 and active until it was decommissioned in 1881. Its major function was as a headquarters for US Army Cavalry and Infantrymen to fight Indians, mainly Kiowa and Comanche, and to protect the area from marauders. (Olds, 1969) Known as the “Hell Hole of the Clear Fork”, it was a hub for buffalo hunters and a way station on cattle drives. (Parker, 1960) The
Fort Griffin sits on a bluff above the Clear Fork of the Brazos River in Shackelford County just a few miles north of the county seat of Albany, Texas.

The town of Fort Griffin, also known as “The Flat”, grew up on a flat area between the bluff and the Brazos. The town was an unruly frontier town full of saloons, dance halls and gambling houses, where, “hardly a day or night passed but when the pistol bark in some saloon sent some poor devil with his boots on to a coffinless grave in the old civilian cemetery.” (Parker, 1960)

Figure 5: Illustration of Fort Griffin. The fort is on the bluff to the left and overlooks the town to the right; the Indian village is at the top in the background. Illustration from www.texasbeyondhistory.net.

About half a mile from the town lay an Indian village inhabited mainly by Tonkawa and Lipan Apache. The Indian village consisted of about 25 tipis on a half-acre plot which housed the Indian scouts employed by the Army and their families.

Fort Griffin was not a stockade fort but built on an open plan. The high location allowed them to see for several miles in all directions so they did not fear attack. Although commissioned as a permanent installation, Fort Griffin never received enough funds to upgrade most of the buildings from more than temporary or semi-permanent buildings. (Olds, 1969) Only a few buildings were made of stone, the ruins
of which are visible today. When the Fort was abandoned by the military, townspeople moved into several of the buildings. The town itself was slowly abandoned as the military left and all the buffalo were hunted to near extinction. The final nail in the coffin for the town of Fort Griffin was when the Texas and Pacific Railroad decided to run through Albany instead of Fort Griffin. (Olds, 1969) There were still some inhabitants of the old buildings until the 1920s when they were finally completely abandoned.

The first archaeological excavation took place in the 1940s under the direction of the Civilian Conservation Corps (CCC) but we did not have that collection at THC, only some documentation. Sometime in the early 1960s, someone cleared the land of brush and mesquite with bulldozers, and by dragging heavy chains across the land. This work jumbled many of the artifacts and destroyed their provenience. Most subsequent archaeological work was commissioned by the TPWD and performed by archaeologists with the University of Texas at Austin. Most of the work was done as part of reconstruction and restoration efforts for Fort Griffin State Park. The priority was to answer specific questions. Where did the flagpole stand? What were the boundaries of the parade grounds? What were the officers’ quarters and the enlisted men’s quarters like? What did the Administration Building look like, that is, where were the doors and windows? The first excavation conducted to begin to answer these questions was directed by Doris Olds in 1969, for which we had the documentation and some artifacts, which may or may not belong to it. The first excavation for which we had the whole collection was conducted by Catherine Yates, in 1971. The next excavation was conducted in 1973 by Anne Fox, for which we also had the entire collection. The last real excavation to be done at Fort Griffin was also conducted by Anne Fox, in 1976, but this time for the Center for Archaeological Research (CAR) at the University of Texas at San Antonio, and for which we only had a portion of the collection. The remainder of the Fort Griffin collection came from various surveys done either in advance of minor construction projects or to evaluate future large scale excavation potential. The fact that excavation collections and portions of collections are missing is illustrative of the curation crisis and the neglect of proper storage over the years, as I will discuss below. Tragic as it may seem, everyone currently in the field of curation
is trying to correct the mistakes of the past and I am sure the missing Fort Griffin artifacts are out there somewhere and, hopefully, they will be found and reunited with the rest of the collection.

_Tedium, Tragedy, and Triumph: A Closer Look at Materials Curation_

When I first discussed my internship with Laura DeNormandie, the Chief Curator at the Historic Sites Division’s repository, we decided that it would be most profitable if I could be exposed to as many aspects of materials curation as possible and that I should have a project which could be completed in the time allotted. To these ends, we decided I should work on the Fort Griffin collection. In this section, I will describe the stages of curation as I experienced them. I will discuss the state of the Fort Griffin collection at the beginning of the project, what I needed to learn before commencing work, how I sorted the collection, reorganized, relabeled and inventoried it, and, finally, I will relate the trip we took to the Conservation Research Lab at Texas A&M and what I learned about the art and science of conserving artifacts.

_The Collection_

As I found it, the Fort Griffin collection consisted of roughly 50 boxes from several different excavations. The collection had passed into the possession of the THC from TPWD in 2007. There had been some previous curation of the collection but it was still in a state of mild disarray. To give some background, since the collection had passed into the THC’s care there had been a funding cut of roughly 50%, causing the loss of staff and belt-tightening at the THC statewide. Additionally, the repository I interned at was still new and purpose-built for housing the Historic Sites Division’s collections, but that also meant that everything had been moved from the previous provisional repository. In that move, archival rigor suffered somewhat in the name of maximizing the efficiency of the move so, for example, the Fort Griffin collection was jumbled together without regard to which excavation the material came from and, occasionally, an artifact from another site would find its way into a Fort Griffin box. Lastly, as part of the
switch from TPWD to THC, Fort Griffin was undergoing changes and objects were pulled from the collection for conservation and then display. To summarize, the collection was a bit jumbled from the move, artifacts had gone to conservation and returned and some of those had gone to be displayed. There was one final wrinkle, some objects, roughly one quarter of the collection, had been inventoried to a master inventory but using an outdated system because the THC was moving to a new archaeological database called Rediscovery. All this seems to paint a negative picture of the THC but really it is a portrait of a still young Division dealing with the real world of materials curation, facing sometimes competing interests as best it can. This is what I wanted to experience in my internship: the world outside of the textbooks.

**Preparation**

The first order of business was to familiarize myself with Fort Griffin and the excavations which had been undertaken. Laura had gathered all the relevant literature for me to read as well as a flash drive with the archaeological reports on it. My first day was spent reading. The reason this was so important, as I discovered later, was that I was able to gain an understanding of the site, where each excavation had taken place and what they were trying to understand. Having a firm knowledge of the site, knowing which excavator was using which process, helped me later in putting the collection in order.

**Sorting and Separating**

My first actual task was to separate the artifacts into their respective excavation collections. This is important, because each excavation was meant to answer different questions, and, as matters stood, the pieces were jumbled together like two different but very similar jigsaw puzzles. As I sorted the artifacts, I had five or six in each box that required more in depth research to figure out where they belonged. In order to have better success, I made a trip to the University of Texas at Austin’s Texas Archaeological Research Lab (TARL), where they stored the original paperwork from the UT sponsored excavations, to make copies of the specimen inventories. The specimen inventory is a list of all the artifacts discovered,
where they were found and on what day. By using the specimen inventories, I was able to find out to which excavation most of the mystery objects belonged. Sometimes it meant going through the entire inventory line by line. In one case I identified that an artifact belonged to the Yates collection by matching the distinctive handwriting of one of the excavators. In the end I was able to place all the items except for one button that lacked any documentation at all. The process was at times tedious but every success was a small triumph.

**Reorganization**

After separating the excavations, Laura and I discussed how the collection should be organized. The best practice is to keep a collection as close to how the principal investigator organized the excavation as possible. For example, the 1973 Fox excavation is divided into 59 lots, each of which corresponds to a location they excavated. So lot 32 may be all the objects found in the northwest quadrant of the second officer’s quarters building, for example. If Fort Griffin had a deeper stratigraphy, then they could have also included levels or units corresponding to the level at which the objects were found. Therefore, the Fox 1973 excavation would be organized by lot numbers. The complication to this system is that different materials require different storage climates to prevent deterioration, as will be discussed in the following section. The answer is to organize the collection by both material and lot number. For example, if there are three boxes containing glass, then the first box may be lots 1-14, the second box may be lots 15-18, and the last box would contain lots 19-59. Then the next material type would be organized this way and
so forth until the entire collection is organized. For the bulk of the excavation collections, the material divisions consisted of metal, glass, ceramic, bone, shell, stone, etc.

I decided to start with the 1971 Yates excavation because it is smaller and would be good practice for the larger Fox 1973 excavation. It turned out that the Yates collection was smaller but more complicated. The specimen inventory was actually turned into two inventories sometime in the past. One inventory is organized into lots 1-42 based on excavation locations, e.g. officers’ quarters L-12 portico or hospital complex P1-A Feature 20. This inventory, which I named inventory A, has all the excavated objects but is often not very detailed; for example, an Aiken saw hammer set is denoted as “1 metal object.” This means that it is extremely difficult to verify if an object is the listed object once it was been disassociated from the inventory.

The second inventory, which I named inventory B, is somewhat more detailed but leaves out many of the objects. The second inventory is labelled 1-325 and gives numbers to specific specimens, for example #325 pipe stem fragment or #67 shot pile. There are difficulties with this list. For example, the list maker(s) gave a specimen number to almost every bag of glass shards, usually by type or color, but left out of the specimen inventory many bags of nails, staples, screws and the like. However, towards the end of the list, sometimes glass is omitted from the list but nails are retained, especially if the specimen number refers to more than one object.

Furthermore, the beginning of the second specimen inventory has one number for one object but by the end of the list a specimen number will refer to an entire lot’s

![Image](image.png)
worth of objects. Specimen #322, for example, is an entire bag of artifacts. Due to the lack of detail in inventory A, it was infeasible to reassociate the artifacts from inventory B into their proper lots, if not impossible. The solution was to note the existence of the two inventory styles and catalogue items numbered 1-325 as if they were lots.

Another issue was the large number of nails and fasteners. In discussion with the other staff, I learned about bulk collections. One way to deal with a large number of the same type of artifacts is to create a bulk collection. Basically, if there is a large number of the same type of object, they can be separated from the main collection to make a sub-collection called a bulk collection. For example, another intern had worked on the Levi-Jordan Plantation collection, another one of THC’s 20 historical sites, where turtles were a common food source. She had numerous bags of turtle bones, and was able to make a bulk collection of them. Making a bulk collection allows the curator to catalog the items by weight instead of number. Instead of counting out 6000 or so nails, they are weighed and put into their own boxes. Ideally, when an archaeological collection goes to curation, the principal investigator will work with the curator to conduct a survey of similar objects. For example, the number and types of nails would be noted by location. Then a representative sample, 5%, 10%, 20%, would be kept and the rest disposed of. Interesting and diagnostic samples would all be kept though. This allows the collection to be kept to a manageable size. (Childs, 2000) These sorts of policy decisions are the responsibility of the agency though and, as mentioned, the Historic Sites Division is still young and working on these policies. Additionally, the Fort Griffin collection consists of excavations done before these best practices were created. Once a researcher conducts a survey, then, perhaps, some of the collection can be disposed of.

When I started organizing the Fox 1973 collection I found it to be much simpler and the work faster, especially after I discovered that the vast majority of the collection belongs to just three lots: B55, B58 and B59. Additionally, there are several boxes that already have only one material type and belong to only one lot, e.g. a box belonging to lot B55 that is only ceramics. The final materials categories, which
emerged for this collection, are: Unconserved Metal, Conserved Metal, Glass, Ceramic, Bone, Leather, Adobe/Plaster, and the final category Stone, Shell, Rubber, Wood, Plastic, and Unknown.

Finally, I put the unprovenienced collection in order. There is material from several surveys and surface finds. I put a couple boxes into order by site number because they technically belong to Fort Griffin State Park rather than Fort Griffin State Historic Site. The Fort Griffin Historic Site is described by the trinomial 41SF4. The designation has three parts: 41 references the state of Texas, SF stands for Shackelford County, and the 4 means this site is the fourth permitted excavation in that county. The new sites at the Park are 41SF21 and 41SF63. I was able to determine which objects came from which site because the objects themselves were labeled with the site designator.

Part of curation is to label the items inconspicuously with an identifier. Generally, a layer of varnish is laid down, the identifier is written as small as possible, and another layer of protective clear coat is applied to protect the identifier. All the inks and varnishes used are reversible and do not harm the artifact. The identifier is placed so that when an object is displayed the writing will not be seen. At THC, the policy is to apply the identifier to an artifact only if it has been accessioned.

Accessioning is the assignment of a unique identifier to an artifact when it is acquired by an institution. At the Historic Sites Division this process is a little different. While I was there they were updating the accessioning system. Although every artifact is assigned a unique identifier for inventory purposes, that does not mean it has been accessioned. Once it has been decided that an object will go on display at a museum or at the pertinent Historic Site itself, then the object is accessioned. If it is returned, then it is deaccessioned, that is the accession identifier is disassociated from the object and not used again. The unique inventory identifier remains the same, though, independent of the accessioning/deaccessioning process. Many objects in the Fort Griffin collection do, however, have some sort of identifier written on the object itself. Usually this is the lot number from the original excavation. These identifiers were written on the object before the establishment of current best practices and are not necessarily reversible without
damage to the artifact; therefore there are no current plans to try to remove them. Since collections are stored for perpetuity, this is extremely common and the reason for modern concern with the reversibility of most of the processes conducted upon an artifact.

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<th>41SF4</th>
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<td>Yates</td>
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<tr>
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<td>Inventory A</td>
</tr>
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<td>Box #</td>
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Figure 9: An example of one of the box labels from the Fort Griffin collection.

**Relabeling the Boxes**

Once the collection was entirely organized, we needed to create new box labels. I used the label template for the previous labels but I added some extra information, most importantly primary investigator and year of excavation. I also enlarged the box numbers so they are more easily legible. The major difficulty at this stage is that I had to count all the objects in each box for the label. This meant going through all the bags in all the boxes. Some of the bags have bag count labels in them but I had to verify the count since objects have been removed for conservation and returned. Also, some of the counts are for bags of mixed
material types and obviously the materials have now been separated. The reason for counting the artifacts is, naturally, for inventory and accounting purposes.

**Creating an Inventory**

My last task was to start making box inventories and a master inventory list. Although a nominally straightforward task, I did encounter a few issues. The previous cataloguers had started an inventory for the Fort Griffin collection but it was in no particular order, certainly not by the boxes as I found them when I started. Additionally, they used an old numbering system which the THC had abandoned. Finally, the inventory needed to be in Excel but it will be mapped to the new Rediscovery database. Laura, the other staff members, and I all met to look at Rediscovery and decided how to proceed with the Excel inventories.

Our conversation centered on two issues: we wanted to make the transition easy and minimize tedious data entry; and we wanted to take the opportunity to standardize our processes. Accomplishing this involved several steps. We had to decide how the new artifact numbering system would work in Rediscovery and Excel. Then we found the data fields on Rediscovery we wanted to include on the Excel spreadsheets and noted the titles so they would be the same, which is the only way to enable a mass uploading of information from one program to the other. I then had to find the relevant data fields from the old spreadsheet to use in the new one. Eventually, I decided I needed to start from scratch with a new Excel spreadsheet. The old spreadsheet inventory had 37 information fields and we brought it down to 14. Most of the discarded 23 information fields were made redundant by the Rediscovery program or were deemed unnecessary.

After getting approval on the Excel spreadsheet, I began inventorying the boxes and immediately ran into my first obstacle. The first box contains artifacts suspected to be from the Olds 1969 excavation but which may actually be from a 1968 survey. In order to standardize our numbering system while also ensuring unique identifiers for each artifact, the new artifact numbering system is based on permit
numbers. The excavators acquired a permit from the state, giving them permission to conduct an archaeological excavation or survey, and the permit number is unique to each project. The artifact numbers consist of the permit number, the lot designation and a sequential number based on how many objects are in a lot and the order in which they are catalogued. This is less complicated than it sounds. For example, the 1971 Yates excavation was conducted under permit number 12. The artifact numbered P12.5.13 is the 13th artifact from lot 5 of permit 12. The problem with the (possibly) Olds material is that Texas did not implement the permit system until 1969, that is, the permit system was created under legislation passed in 1969 and therefore not implemented until after the Olds excavation. This means that older, non-permitted excavation collections need a modified designator system. It also meant that I skipped box #1 and moved on to box #2 which is the first box of the Yates 1971 excavation.

My process was to enter all the information about each item in a box into the master inventory, which creates artifact numbers for each individual artifact as part of the process. I then created a new box tab on the Excel spreadsheet for each individual box and copied the information from the master inventory tab to the box tab. This creates a separate inventory for each box and allowed me to print out a paper copy of the box inventory and put it into the box with the artifacts. All the inventories create levels of redundancy to ensure that provenience is maintained. The box inventories make up the master inventory, which is uploaded to Rediscovery, creating two inventories: one that is localized to the repository and one that is available agency wide on the computer network. The final level of redundancy is the creation of a hard copy of the master inventory to be stored in case the electronic database is corrupted or lost. This work is extremely important because it ensures that all the information about the Fort Griffin State Historic Site collection will be available to researchers in the future.
The only aspect of curating archaeological materials I did not have the chance to experience hands-on was conservation, but I was able to see some of how it is done when Laura took me to Texas A&M’s Conservation Research Lab (CRL). The lab is on a research campus several miles away from the main campus. They have two main buildings, which contain the “clean” lab and the “dirty” lab. The clean lab is an air-conditioned building where they conserve mostly organic materials and make displays from artifacts for exhibit. It is a very clean space compared to the dirty lab. The dirty lab looks like a mechanic’s shop and is filled with vats for electrolysis for smaller objects and tools for metal and wood-working.

When we visited the clean lab, they were making display barrels for the *La Belle* shipwreck which will go on display at the Bob Bullock Museum in November and for the *Heroine*, which is Oklahoma’s one and only shipwreck and which was also conserved at their lab. They made the barrels by using the original wooden barrel slats and sewing them with monofilament line onto and around a shaped foam core. The hoops holding the barrel together were originally wood and are called withies but once they break they cannot be used again to hold together a restored barrel. The lab made fake withies out of carbon fiber and shaped and painted them to resemble the wooden withies exactly. Developing and using high tech materials and techniques to make archaeological objects able to be displayed is the majority of what they do at the lab. The barrels from the *Heroine* mostly contained conserved pork when it wrecked in 1838. Astoundingly, much of the pork was preserved by the conditions of the shipwreck and then conserved by lab staff.

They use silicon oil to preserve the materials. The pork, for example, was preserved because it was waterlogged. The process of conservation in the lab calls for slowly replacing the water with acetone and then slowly replacing the acetone with silicon oil. The chemistry pulls the silicon oil into the material as the acetone leaves. This method can be used on all organic materials and also on glass. One of the amazing aspects of the silicon oil process is that all the things that usually degrade materials, sunlight, humidity, skin oils, etc., are not harmful to the treated material and, in fact, can be beneficial to the treated
object. This means that objects treated with silicon oil can be handled, which will allow museum visitors to have, literally, a hands-on interaction with exhibit materials. I myself held a chunk of 176 year old pork in my hands. The process inhibits deterioration so well that even the follicles in the skin where the bristles had been removed were visible.

Down a short walkway from the clean lab is the dirty lab. The defining feature outside the dirty lab is the large assortment of containers of various sizes and shapes everywhere. These containers either are filled with water and contain materials awaiting conservation or are filled with acid and used for electrolysis. The conservation lab mainly deals with maritime archaeological materials. When materials are removed from a waterlogged archaeological site they need to remain waterlogged until they can be conserved. Interestingly, materials from either salt or fresh water can be stored in fresh water. When the La Belle, one of the ships of the famous French explorer La Salle, was discovered in the Gulf of Mexico it was brought to the CRL. The La Belle was such a large find that the lab had a large in-ground storage tank built just outside the dirty lab. The tank can hold somewhere around 100,000 gallons of water. Large objects are unsuited to treatment with silicon oil mostly due to cost and the dangers associated with a large container of highly flammable acetone. Large objects therefore are treated with polyethylene glycol (PEG) in much the same way as with silicon oil, in that the PEG slowly replaces the water in an object. PEG however will fill the cells of organic materials as it replaces the water and the material remains very heavy and unwieldy, unlike the silicone oil which strengthens the cells without filling them up so the material becomes very light, relatively.

The La Belle was stored in the giant tank and treated with PEG originally, but, due to various cost and regulatory constraints, the process had to be discontinued. At that point the lab switched to freeze drying to complete the preservation process.

As mentioned previously, many of the containers outside the dirty lab were used for electrolysis. Electrolysis is the process by which metal, especially iron, is cleaned of rust. The metal object is
suspended in a steel vat of electrolytes (acid) and an electrical current is introduced. As the electrons pass from the object to the metal vat the rust is pulled away with them. The more similar the shape of the container to the material being preserved the better the process works. For example, the 13,000lb cannon they restored was submitted to electrolysis in a giant steel half cylinder resembling the shape of the cannon. All the large heavy objects are kept outside and all the small objects are inside where they can be locked up to prevent theft. They also build displays at the dirty lab. When we were there, they were working on a wooden carriage for the 13,000lb cannon using a Civil War era photograph as a guide. Off the main lab is the resin lab where objects that cannot be restored are cast in epoxy resin then painted to exactly resemble the original object.

After a tour Laura and I received the objects the lab had conserved for us. They had conserved several metal objects including a stove and an iron sugar pot. After iron undergoes electrolysis it is painted black to resemble its original appearance and treated with a wax. Apparently iron is a tricky material and no matter how well it is conserved it will deteriorate eventually. Iron is always changing. For example, if a cook uses an iron cooking pot and always taps a wooden cooking spoon against the pot in the same spot, that spot will be weaker than the rest of the pot. During or after the conservation process, it is common for a piece of iron in that one spot to just break away from the pot due to the weakness caused by the spoon. The best a curator can do is try to store conserved iron in such a manner as to inhibit deterioration as much as possible.

We also received a very nice schnapps bottle from the 1800s that had been treated with silicon oil. It was a blackish dark green and looked brand new. Laura tries to send as much conservation work to the Texas A&M lab as possible because, not only do they do excellent work, but they also use the money from conserving other institutions’ collections to support their lab. The struggle for funding is a constant in the world of academia. As archaeologists sought money for their excavations, considerations for curation, until very recently, often fell to the wayside. This chronic underfunding led to a crisis in curation, as I will now explain.
The Skeleton in the Closet: The Curation Crisis

It is a peculiarity of archaeology that the process of scientific exploration is also a process of destruction. An archaeological excavation uncovers artifacts and destroys the microcosm, in which they have lain, preserved and protected, for many years. These artifacts, once uncovered, require storage. Many of them also require care to prevent deterioration of the material. Storage and protection are necessary for later study of the artifacts by either the principal investigator or any researchers in the future. In order for them to be easily accessed, the artifacts also require a coherent organization. These factors: storage, protection and organization are the fundamentals of curation. In the following section, I will discuss these factors, as well as curation, generally, and the curation crisis, specifically.

Curation is, unfortunately, an often neglected and overlooked aspect of archaeology. Many archaeologists are more concerned with work in the field and finding the artifacts in the first place. This is especially true of Cultural Resource Management (CRM) work, which is undertaken under the pressures of gathering as many artifacts and as much information from a site as possible before the site is destroyed by whatever construction work is taking place, e.g. building roads, dams, buildings, etc. Historically, most of the budget for an excavation goes to the excavation itself and very little is set aside for curation of the materials found. For example, the U.S. Army Corps of Engineers spent an estimated $165 million excavating archaeological sites between 1975 and 1990 and spent almost no money on the curation of the associated finds. (Childs and Corcoran, 2000) The neglect of archaeological collections is known as the curation crisis.
In 1990, the United States Congress enacted legislation, specifically 36 CFR 79, to address the issue of inadequate curation. The legislation required that archaeological collections should be properly stored and curated. Additionally, all archaeological excavations should specify where the artifacts discovered should be stored and provide funding for curation. Until that point, storage of collections was often appalling. Many collections were in the possession of the principal investigators in closets, offices, storage units, generally anywhere space could be found. These collections were not stored in proper receptacles in climate controlled spaces where deterioration of the materials could be ameliorated.

Curation begins in the field. When artifacts are taken out of the ground or soil samples are taken; whenever material is removed for scientific study, that material needs to have its context recorded and to be placed in archival quality receptacles to prevent deterioration.

Context is extremely important in archaeology as without it only superficial information can be gleaned from an artifact. Where the artifact is, at what stratigraphic level, as part of what feature, its deposition in association with other artifacts, all enable deeper levels of interpretation of a site. The locational context of an artifact is known as its provenience. For example, a provenienced button can tell a researcher the earliest possible time of occupation, the occupation and status of the person who wore the button, the connections of the occupants to trade and industry, contemporary fashions, etc. An unprovenienced button is next to worthless, nothing more than a misplaced clothes fastener.

Figure 8: An example of improper storage. From the photograph collection of the U.S. Army Corps of Engineers, St. Louis District. As used on the National Parks Service website www.nps.gov.
In order to maintain provenience, archeological materials need to be well organized and stored in the proper receptacles. Archival quality receptacles are important because they inhibit deterioration of materials. When an artifact is found, it is being taken from an environment that, ipso facto, promotes preservation of the material to an environment that may promote deterioration. Materials reach equilibrium with the environment around them and therefore care should be taken to change that environment as little as possible. (Childs and Corcoran, 2000)

Before curation became a priority and preservation was undertaken scientifically, artifacts were mostly placed in whatever receptacles were at hand at the site. Many, many collections of artifacts were placed in paper bags, old beer cases, and empty livestock feed bags with the artifacts all jumbled together regardless of whether one material may accelerate the deterioration of another. For example, physical deterioration could occur if ceramics were put with cannonballs or glass with iron ingots. Also chemical interactions can deteriorate artifacts, for example, acids and vapors from organic materials can cause lead to corrode. (Griset et al, 1999) Modern archival quality receptacles are designed to have a neutral impact on materials, for example acid-free boxes and bags. Additionally, when artifacts are put into storage, different material classes require different environments. Each material class, i.e. bone, ceramic, metal, etc., requires different ranges of temperature and relative humidity to maximize preservation.

Finally, all the paperwork generated by an archaeological excavation must remain with the collection in some form so the context can be preserved. Paperwork, such as field notes and
specimen inventories, can also come in handy if an artifact is misplaced within a collection. When all these aspects come together: storage, protection, and organization; a collection can be said to be properly curated and its research value will be maintained in perpetuity.

**The Arrow of Time: The Direction of Curation in the Future**

From the field to the lab, curators and archaeologists are finding new ways to respond to the curation crisis and interact with archaeological materials and collections, a few of which I will now discuss.

Many agencies which regularly conduct excavations are working on collection guidelines in order to limit the materials which go to collection in the first place. The National Park Service has done the most work in this regard and recommends that only certain materials be collected and many others remain where they are found. Collection guidelines provide a rubric to determine whether archaeological artifacts should be collected or remain where they are. This often, though not exclusively, applies to surface finds. If information about an artifact can be noted without the artifact itself being collected, then that may be the best response to the find.

A corollary to collection guidelines is the replacement of artifacts after they have been excavated. The philosophy behind this is that artifacts have remained preserved where they are ever since they were deposited there and it may be detrimental to remove them. Once a certain amount of information about an artifact has been recorded then the artifact can be replaced and the location noted for future researchers who may be interested.

An artifact itself is next to worthless without context. Archaeology therefore is more about information than objects. Once enough information is gathered it may not be necessary to retain artifacts other than some excellent type specimens or very interesting artifacts to display and ignite public interest.

There are many involved in archaeological curation today who promote increased study of current collections. There is much material, especially from the CCC era, which has been collected but never
fully studied. Barbara Voss, in a 2012 article, describes curation leading to research on collections even when the collections themselves have been orphaned, that is, the provenience is lost or unclear. Voss writes about how her students were inspired during the process of curation to innovate means to use such collections to answer research questions. For example, her students’ research of a poorly provenienced collection stemming from a CRM excavation of a late 19th century Chinese neighborhood in San Jose, California provided evidence that the Chinese immigrants used specific locations as trash dumps and furthermore, they used specific dumps for specific types of trash. At a time when the Anglo residents typically threw trash in the streets, the Chinese residents were using what we now view as modern waste removal practices. This is productive research done on orphaned collections and, presumably, even better research may be done on fully cataloged and provenienced collections.

There is also an increasing emphasis in archaeology on low-impact, high-tech archaeology, in which there is an increased use of remote sensing, allowing focused excavations of small areas. As technology becomes more advanced, archaeologists will have an increased ability to see what is in the ground and study those objects without excavating at all if it is deemed unnecessary.

The final step in ameliorating the curation crisis is deaccessioning some artifacts and even the supervised destruction of artifacts. The previous philosophy was to save everything discovered in an excavation but not everything is useful or has lost its use over time. Though it may seem heretical, a deliberate and thoughtful analysis of collections may allow some things to be destroyed without harming a collection’s research value and thereby freeing space for other more useful collections.

**Final Thoughts**

In my time at the curation lab of the Historic Sites Division of the Texas Historical Commission, I came face to face with the real world issues facing curators of archaeological materials. In addition to learning about the process of curation, I also was able to explore the history of curation, the issues facing modern curators, and what curation may look like in the future. As curators grapple with the curation crisis, the
wealth of unexplored material also provides ample opportunities for research in the future. There is so much material begging to be studied in repositories around the world that an archaeologist may have an entire career without ever conducting an excavation. At the very least, properly curated collections can and should be used in conjunction with excavation in the study of the past. Several recent cutting edge archaeological hypotheses are due to archaeologists studying other institutions’ collections.

Patricia Sutherland from the Hull Museum in Canada, while studying a collection of materials from the Dorset people of the Canadian Arctic, noticed that some yarn was made using what appeared to be Norse spinning methods, indicating possible Norse-Dorset contact around the 11th century CE. (Sutherland, 2000) Bruce Bradley and Dennis Stanford wrote in their book, *Across Atlantic Ice: The Origin of America’s Clovis Culture*, that observing Solutrean lithics in a museum in France led them to their controversial hypothesis that the Clovis lithic tradition may have been due to Europeans entering the Americas after following the polar glacial ice edge across the Atlantic Ocean. (Stanford and Bradley, 2012)

In conclusion, I have, in the course of my internship, gone from knowing almost nothing about curation to experiencing first-hand the issues, trials, and tribulations curators face each day. Curators have long been the unsung heroes of archaeology, but the work they do is as important as that of the excavators in the field. The proper curation of archaeological materials provides a firm foundation for future research through preservation and organization. The process of curation can itself inspire research, as handling archaeological artifacts ignites curiosity in the curator and invites him or her to contemplate the people who used the artifacts in the past. During the course of my internship, I have gained a great respect for the painstaking work curators do to maintain the collections under their care, and I have come to appreciate curation as not just storage but as an immensely important aspect of archaeology and the broader field of anthropology.
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Still to do: (see red bits)

1) Put identifying types of glass and ceramics earlier, probably with material types discussion i.e. org. section.

2) Somehow make inventory section more lively and didactic.