

## Hotel Indigo Site (44AX229) Field Excavation Updates

September 2015 – January 2016

*Note: The information on this page reflects the state of knowledge when this update was written. Information may have changed. Please see the Hotel Indigo Report [Volume I](#) and [Volume II](#) for updated information.*

### Rail Lines and Walls

September 2015

The Bryant Fertilizer Factory caught on fire and burned down in 1897. We see evidence of this catastrophic fire across the entire site in the form of this upper dark black burn layer in the wall of an archaeologically excavated trench. This stratigraphic layer acts as a boundary that we know dates to 1897; therefore, everything below this layer must date to before the fire and everything above the layer must date to after it. In addition to the 1897 fire, two other fires burned down buildings on this lot, one in 1810 and the other in 1854. The lower dark black burn layer may represent one of these other two fires. As archaeologists, each of the layers here tells us something about a specific time period on this lot. Some, like the upper layer of broken brick and mortar, are related to the destruction of structures in the mid-20th century. Others, like the brown layer separating the two dark black burn layers may represent layers of accumulation and fill as activities take place through time.

- See information on [other discoveries from 220 S. Union Street](#), including a 1755 warehouse and an 18th-century ship.

## Rail Lines

We first see these rails on the 1902 Sanborn Fire Insurance Company Map. They leave the main rail line, which ran down Union Street beginning in 1851, and enter the Bryant Fertilizer building in its southwest corner; this configuration remains unchanged on the 1907 Sanborn map. They do not appear in the 1896 edition of the Sanborn map and some time before the publication of the 1912 edition, these rails disappear—giving us a fairly tight date range for this feature. By 1912, instead of loading rail cars inside the factory, it appears that the Bryant Fertilizer Company built a platform along the west side of their factory into S. Union Street to load rail cars directly on the main line. The cement footers seen running on top of the rails here are built directly on top of this spur line and would have supported the weight needed for loading onto railcars from the platform.



## Brick Feature

This brick feature was one of the first encountered during the excavations at 220 S. Union Street. It is underneath the upper burn layer, which means it is older than, or pre-dates the fire of 1897. Because this burn layer rests directly on top of the brick feature, it was probably in use in the factory at that time. It runs north/south—parallel to S. Union Street—several feet inside what would have been the Bryant Fertilizer Factory.



It was first uncovered in an archaeological trench, which was subsequently expanded through further excavation to expose the entire intact surface. The brick feature is three-courses thick, providing a fairly robust surface for the industrial activities of the factory. Documentation suggests that at one point this portion of the factory is being used for mixing and the unusual stepped-shape of the edge of the feature and the stratigraphic profile of the burn layer here suggests there may have been a pit or vat for mixing fertilizer before loading it onto rail cars. A fourth course of brick on the top of this feature may indicate structural support for either the factory building or for heavy machinery used in the manufacture of fertilizer. Likewise, a small hole extends through the brick floor and may have been an anchor point for the machinery.

## Cinder-block Wall

This relatively modern cinder-block wall is sitting on top of a brick footer. By 1959, a warehouse had replaced the Fertilizer factory on this lot, of which this wall is probably a part. While the base of the wall is under approximately a foot of fill, the cinder block wall extends up through the surface of this fill. This warehouse stood until the current construction began at 220 S. Union Street.



## Concrete Slabs

Under some of the mid-20th century fill on the site are these concrete slabs and/or foundations. These are similar to the concrete footers resting on top of the rails along S. Union Street and probably also date to the early 20th century activities of the Bryant Fertilizer Factory. As this fill comes off, much more of this concrete slab becomes apparent.



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## The Early Shoreline and More Recent Finds

*October 2015*

Throughout October, consultants from Thunderbird Archaeology (a division of Wetland Studies, Inc.) continued their code-required excavations at 220 S. Union Street prior to the construction of the Indigo Hotel. They peeled back the layers of time and found themselves mired in the



sands of the mid-18th century, about 4 to 6 feet below the current ground surface (in the area being excavated for the hotel garage). The entries and photos below will take you back through time to reveal their discoveries of evidence of Alexandria's earliest history, including the shoreline of the town's original cove.

- See information on [other discoveries from 220 S. Union Street](#), including a 1755 warehouse and an 18th-century ship.

## Recording the Site

One of the most important parts of doing archaeology is recording the things we find. The story of the past comes from understanding the context of archaeological discoveries—not just from the discoveries themselves. Archaeologists locate artifacts and features both horizontally across the landscape and vertically as they dig down into



the soil layers, getting earlier and earlier with depth. The dates of the artifacts from each layer help to determine the time period of occupation, and analysis of the types of artifacts sheds light on the activities that occurred across the site during a particular era. Archaeological features associated with the periods of occupation include obvious human additions to the landscape, such as foundations or wells, or other more subtle evidence of human disturbance to the soil, recognized as differences in soil color and texture within the stratigraphic layers.

In this photo, archaeologists are using surveying equipment to record the locations of archaeological features, marked here by pin-flags. This equipment is frequently used to measure and record features and sites with extremely high accuracy. The resulting data will be mapped and published with the report from this site.

## The 1749 Shoreline

Also, note the two very distinct types of soil present in the above photograph. On the right is lighter-colored sandy soil and on the left is darker-colored clayey soil. According to our research with period maps, the city's original, circa-1749 shoreline runs through the lot at approximately this location. If this soil change represents the historic shoreline, then all of the ground to the east—between here and the river—is imported fill that has been deposited as the city grew.

## Sidewalk

Prior to demolition at 220 S. Union Street, the block's sidewalk along Duke Street was made from concrete and built low to the street so that trucks could back up right to the warehouse and unload into one of four loading docks. Under this concrete sidewalk, archaeologists have discovered an earlier brick sidewalk. Note the diagonal brick pattern, which is characteristic of some blocks in Old Town today, but unlike the existing brick sidewalks now seen in the immediate area of the site.



## Iron box

This riveted iron box was encountered near the west side of the lot, close to S. Union Street. Inside were accumulated soils and architectural debris. The size and weight of this box required special equipment to remove it. Current interpretations indicate that this box was either associated with the Bryant Fertilizer Company or a later structure, built in 1959 and demolished just recently to make way for the present construction of the Indigo Hotel.



## A Revised Interpretation

As archaeologists dig any site, they are constantly asking questions about the date and function of their discoveries. On historical sites, they continually go back to their documentary information to try to integrate the historical and archaeological records. The interpretation of the use of the brick floor area featured in the September update has changed since its posting. Thunderbird archaeologists report that the feature was most likely associated with the Bryant Fertilizer use of the property, but its exact function is unknown at this time. The small hole was attributed to earlier geotechnical boring.



## Postholes

The archaeologists on site have identified many postholes. This first photograph shows the remains of a wooden post. Archaeologically, posts are distinctive features, frequently consisting of two parts. The larger, outside circle is called a posthole and is the result of digging a hole in the ground, placing a wooden post into this hole, and filling in the remainder of the hole around the post with dirt. The smaller, darker feature in the center of the post hole is called a post mold and is usually the result of the wooden post decaying in the ground. Here at 220 S. Union Street, the wooden post has not decayed and you can still see part of it above the ground surface. Ordinarily, wood like this does not survive in the ground for very long; however, the wetness of the soil and the fact that many of these posts may have burned have probably contributed to their survival.

When archaeologists find a row of postholes, like the one seen in the second photograph here, it is strong evidence for a fence line, building, or, given the proximity to the river and fill soils, perhaps a pier or wharf. Thunderbird archaeologists are interpreting these posts as the support for a building or a fence that lined an alley that once cut through the lot. They have excavated to the bottom of the post holes, and they are less than 2 feet deep--not deep enough to have been pilings for pier supports.



## Stone Wall

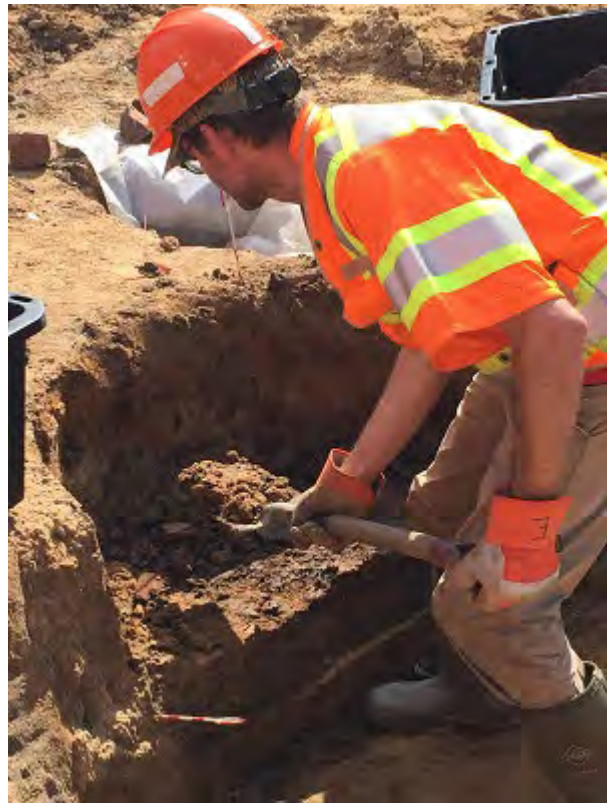
This stone wall was found along the north side of the lot, up against the neighboring building to the north of 220 S. Union Street. It is probably the foundation for a warehouse that was constructed on this northern adjoining lot in the late 18th and early 19th-century. The use of stone (often a type of rock known as schist) for foundations in Alexandria generally predates 1830, when fired bricks became strong enough to be used for this purpose.



*Running under many of the beams of the warehouse is a stone foundation wall. In some places, this wall is more than three feet deep and helps to support the weight of the massive building above it.*

## Privies

A pair of privies was discovered on the site. These are located next to each other in the back corners of two adjacent parcels on the lot, which is where privies were frequently located. Tax records show there were structures on these two parcels—the first at the corner of S. Union Street and Duke Street and the second just north of that along S. Union Street—by 1802. Because we can learn a lot from privies, especially about the kinds of things people were eating, much of the soil from these contexts will be screened through much smaller mesh (1/16" instead of the usual 1/4") to recover smaller objects that would ordinarily fall through our screens. An analysis of the ceramics and other artifacts recovered from these privies can also help us determine when these privies were in use as well as other important information about the people living and working on this site.





## Coral

This piece of coral was found under the Strand and is indigenous to the Caribbean. Coral was sometimes used as ballast to keep ships balanced and floating at the appropriate height in the water. When taking on cargo, this ballast is no longer needed and dumped. It is frequently said that many old cobblestone streets are constructed from dumped ballast. This piece of coral was also found with cobbles and timbers, suggesting it was most likely former ballast dumped and incorporated into new land fill behind a retaining wall or next to a pier or wharf. It serves as a reminder of the “triangular trade” between Great Britain, the colonies of British North America, and British colonies in the Caribbean.



*Thunderbird Archaeologist John Mullen holds up a piece of coral recovered from under The Strand. It was probably brought here as ballast and unloaded at the waterfront.*

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## The 1755 Warehouse

*November 2015*

### The Discovery

During the final days of September, 2015, hints of a possibly exciting discovery began to emerge during the excavations for the garage of the hotel. Large timbers were unearthed as archaeologists from Thunderbird Archaeology monitored the excavation of a trench at the edge of Duke Street prior to the placement of pilings around the periphery of the site. Construction work ceased in this area to allow for a substantial archaeological investigation, which was completed in early November.





Historical records indicated that this area of the hotel site was the location of a 1755 warehouse, constructed at the behest of the Trustees of Alexandria. At their meeting on June 18, 1755, the Trustees:

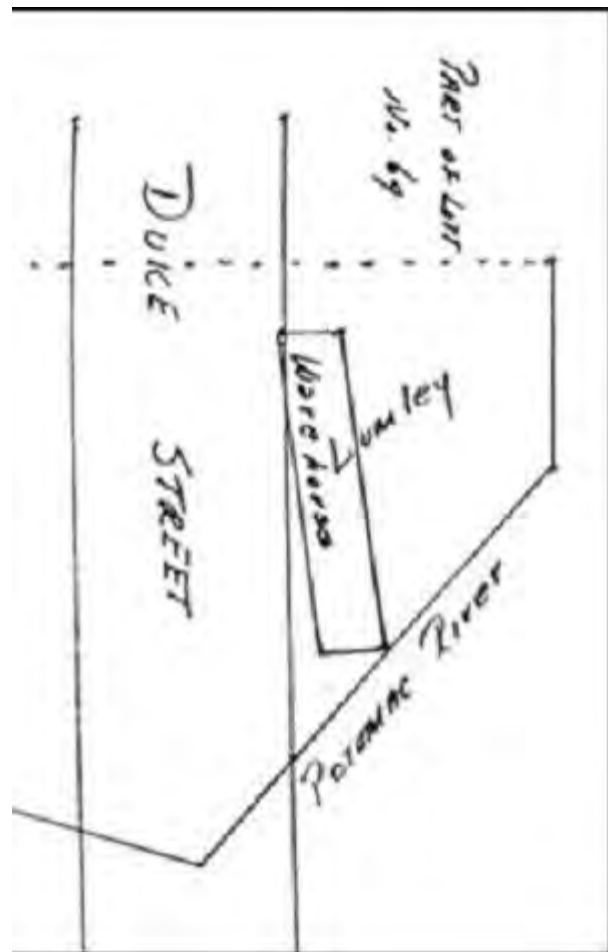
*"Ordered that John Carlyle Gent. Do erect & build a[t] Point Lumley in this Town a Warehouse of the following Demintions One hundred feet long twenty four feet wide thirteen feet Pitch'd To be three Divisions double strided, the sills to be rais'd four feet from the ground & so compleatly finished."*

A plat map drawn of the warehouse in 1774 depicted it on the north side of Duke Street, at a slight angle to the roadway.

*Left: The Thunderbird Archaeology crew posing with the uncovered 1755 Carlyle Warehouse.*

*Right: This plat from 1774 shows the location of the warehouse and its lot in relation to Duke Street and the Potomac River.*

It was unknown whether any remains of this structure would still exist after 260 years of waterfront development and change. However, as archaeologists peeled back the soils covering the wood, the outline of a building 24-feet wide and 90-feet long began to emerge in the location shown on the plat, not quite parallel to Duke Street. Archaeologists uncovered some of the major framing elements for the foundation of this building, sections of the floor, and even parts of the interior walls, all *in situ*. Only the easternmost ten feet of the structure's foundation had been fully destroyed by previous construction activities.



The frame foundation of the building consisted of massive timbers, possibly 20 to 30 feet long, with 12-inch-square cross-sections. These wood sills spanned much of the length of the building. Stone foundations up to three feet in height lay under the sills. A similarly robust, load-bearing beam, known as a summer- beam, divided the structure in half lengthwise, and a large cross-beam survived as evidence of the “three Divisions” ordered by the Trustees. Fragments of the exterior walls (as well as a thin interior wall on top of the summer-beam) were still visible perpendicular to the sills, as were remnants of wood posts and studs that held up the roof and walls. Much of the building sat on a stone foundation, up to three feet deep. The intersection of the cross-beam with the summer-beam was supported by a massive pier of dry-laid stones. In one section, portions of the floor boards underlain by joists also remained intact. In the other sections, small round timbers—some of which were not *in situ*, were less well-preserved than the massive timbers; these may also have served as joists for floor boards. One of these rounded timbers appeared to have been the mast of a small ship, reused in the construction of the warehouse.

*Right: This summer beam and two others like it would have run between the center crossbeams and divided the warehouse in half lengthwise. Carved into this beam are tenons where they joined the crossbeams and mortises where the posts holding up the roof and the studs holding up the wall would be attached.*



*Above: An archaeologist brushes dirt away from the exposed timber. Visible here are the mortises into which posts and studs would be fitted as well as a pair of studs and wall covering still in situ.*







*Left: Running under many of the beams of the warehouse is a stone foundation wall. In some places, this wall is more than three feet deep and helps to support the weight of the massive building above it.*



*Above: This stone pier is located under the intersection of the summer beams and the center crossbeam. After these beams were removed, archaeologists carefully numbered and labeled each of the stones that hold up this key junction of the warehouse.*

The discovery of this structure provides a unique opportunity to document and understand some of the methods that were used in the construction of an 18<sup>th</sup>-century wooden building. In particular, mortise and tenon joints were present throughout the building. The basic mortise and tenon joint consists of a mortise hole cut into one timber with the tenon cut on the other timber to fit exactly into the mortise hole. This construction technique was evident in the placement of the tenons of the stud timbers into the mortises on the sills of the warehouse. The intersection of the cross-beam with the summer-beam also provided a glimpse into the methods of 18<sup>th</sup>-century joinery. In addition, the discovery of smaller wooden structural artifacts, such as trunnels (treenails—wooden pegs, pins or dowels used to attach pieces of wood together), wedges, and wooden roofing shingles allows for further study of the construction practices.

Other artifacts unearthed in association with the warehouse included the tops or bottoms of barrels that would have been used to transport goods in the 18<sup>th</sup> century and the unusual find of a large mammal skull discovered at what would have been the floor level inside the warehouse.





*Above left: An intact mortise and tenon joint from above.*



*Above right: Detail of a mortise and tenon joint discovered while unloading the warehouse at the MAC Lab. Note the peg holes that run through this piece that would have secured the joint. Because of the dirt covering these beams, we had not previously seen this architectural feature. As the wood is cleaned at the MAC Lab, we expect to learn more about the architecture of this building.*



*To the left, the architectural elements of the warehouse are marked. The light blue beams are the bottom of the exterior frame of this building. The dark blue beam is the crossbeam. The red beams are the summer beams that intersect with the crossbeam in the center of the building. The orange elements are floor joists which support the floorboards, marked in green. Missing or conjectural elements are noted by dashed lines of the appropriate color.*



*Above left: Several barrel heads like this one (the tops and bottoms of wooden barrels) were recovered from the site of the warehouse. Barrels would have been used to transport a wide range of goods.*

*Above right: Mammal skull.*

## Significance

The warehouse represents the earliest historical structure archaeologically excavated in Alexandria to date. The town was only six years old when the Trustees ordered its construction. George Washington was still a young man at the time, and we were still a British colony.

Built at Point Lumley prior to the “banking out,” the structure stood below the bluffs on the sand flats adjacent to the Potomac. It was situated on one of the few places where ocean-going vessels could pull up close to the shoreline, and is thus a reminder of the aspirations of the town’s founders to establish a major international port.

The construction of the warehouse can be considered one of the first public works projects in the City. While other lots of the gridded town had been auctioned off to private individuals, this remained public land, and the Trustees leased it to merchants and other businessmen. Andrew Wales started the town’s first brewery in the warehouse in 1770 and operated at Point Lumley until 1774.

The remarkable discovery of the remnants of this 260-year-old building help us to envision what the town would have looked like at the time of its founding. The warehouse remains provide a unique opportunity to study the 18<sup>th</sup>-century building techniques and help to provide insight into the early historical activities on the waterfront as the town strove to become a center of international trade. By the end of the 18<sup>th</sup> century, this vision had become reality, with Alexandria rated among the ten busiest ports in America.

## Conservation

The significance of this site for understanding and interpreting Alexandria’s past called for special treatment of the warehouse discovery. It is extremely uncommon for wood timbers like these to survive archaeologically. Ordinarily, archaeologists merely encounter stains in the soil where wood used to be. The environmental conditions of burial influence the level of

preservation. When wood is constantly wet in its buried environment, preservation is greatly enhanced. The burial of the warehouse timbers in a wet environment next to the river resulted in their preservation for 260 years. However, as soon as water-logged timbers are exposed to the air, they begun to dry out, degrade, and decompose. After this exposure, fluctuations between wet and dry as well as hot and cold further this process.

As a result, it was clear that this discovery could never be interpreted *in situ*, and would need special care and treatment. In the short term, archaeologists on site kept the wood covered and moist to prevent continued deterioration while archaeological and architectural documentation of the feature was underway. However, for long term preservation, the wood needed to be removed and conserved. Only through implementation of a substantial conservation process would the warehouse remnants be available for future study and exhibits to conjure up the activities in the first decades of the founding of the town.



*Above Left: It is important to keep the site covered to help protect the wooden features of this building and keep them wet until the archaeologists are ready to remove them.*



*Above Right: When the building is uncovered, it is important to keep the wood wet. Here, an archaeologist sprays these floorboards with water to keep them from drying out.*

City archaeologists contracted with the Maryland Archaeological Conservation Laboratory to conduct this work. Conservation of wood that has been waterlogged involves submerging it in a solution of polyethylene glycol (PEG) until the chemical has replaced the water in the cellulose of the wood. The wood is then freeze-dried to complete the conservation process. It is estimated that the conservation of the wood from the warehouse could take up to three years.

The removal of the warehouse wood and transport to the conservation lab in St. Leonard, Maryland, was a monumental and collaborative task. The conservationists worked with the staff of Alexandria Archaeology and Thunderbird Archaeology to lift the wood. The City's Transportation and Environmental Services Department aided in the conveyance of the materials to Maryland. Some of the long timbers had to be cut, because the freeze dryer in the lab is only 12 feet long (the largest one that exists on the east coast). The size and weight meant that the timbers had to be mechanically lifted from their position on the site, and the Carr project provided the support for the backhoe use. Slings hanging from a hook on the backhoe bucket were fed under the timbers. They were carefully lifted off the site, wrapped to protect them from drying out, and placed on a flatbed trailer for transport. The wood currently resides at



the Maryland Conservation Laboratory. Imagine the size of the tanks of PEG that they will soak in as the conservation process begins!



*Trucks from the City arrive at the MAC Lab to unload the warehouse*



*After labeling each of the pieces of wood to be removed, archaeologists carefully carry a floorboard away so it can be wrapped and loaded onto the trailer for transportation to the MAC Lab.*



*Above left: Archaeologists from Alexandria Archaeology and the MAC Lab prepare to remove the center crossbeam from the ground.*



*Above right: Lifting the summer beam with the help of the backhoe.*



*Archaeologists from Alexandria Archaeology and the MAC Lab load the warehouse onto a trailer for transportation to the MAC Lab.*



*Temporary storage at the MAC Lab*

## The Future of the Warehouse

The conservation of the warehouse timbers opens the door for its interpretation as plans for the design of the parkland along the waterfront progress. Opportunities exist for at least a partial reconstruction within park. Ideally, this could occur in the vicinity of its discovery. Another possibility includes exhibits within a proposed civic building along the waterfront. Certainly, Alexandria Archaeology will feature the warehouse finds in a planned future exhibit on waterfront discoveries. In addition, the developers plan to highlight the location of the 1749 shoreline throughout the lobby and open space of their project area and have expressed an interest in using some of the materials in an exhibit in the hotel. The warehouse will not be forgotten and will foster a greater understanding of Alexandria's past, enriching the lives of its residents and adding to the experiences of its visitors.

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## The Ship (Part 1)

December 2015

On December 9, 2015, City archaeologists met with the conservator from the Maryland Archaeological Conservation Lab, archaeologists from the Underwater Archeology Branch of the Navy Department, and a local maritime historian to discuss the significance of a ship's hull discovered during the ongoing development of 220 South Union Street.

- See more on the ship discovery from the [January 2016 update](#).
- See information on the [1755 warehouse and other discoveries](#) from 220 South Union Street.

## Historical Information

- The discovery is the port side of a vessel about 50 feet long, which may represent about 1/3 of the hull. The type of vessel has yet to be determined.
- Overlays of the changing shoreline on historical maps indicate that it was buried sometime between 1775 and 1798. The presence of trunnels (trenails/wooden pegs) and very few metal fastenings is consistent with its use in the 18th century.
- The ship appears to have been very sturdily built. The sections of the frame are very close together, suggesting that it carried something heavy. It was probably a coastal vessel, and its use for military purposes cannot be ruled out.
- There is evidence of the keel, the frame, a possible part of the bow stem, a section of the stern, exterior boards, and a section of the interior floor boards, or *ceiling*.
- Portions of the frame were deliberately chopped off, and the starboard side is missing. This chopping (perhaps with a broad axe) and removal of at least half of the hull could have been done while "banking out" or filling in the cove.



## Significance

- The significance of the ship cannot be fully evaluated or understood until more research and excavation take place.
- Additional research will help determine its history and association with Alexandria.



## Recommendations

- The City is working with Thunderbird Archaeology (the consultant for the developer) to record the vessel in place. The documentation will include 3-D laser scanning, photography, and measurements/drawings on site. The scanning will be accomplished in concert with the archaeology. A separate scan of each layer will be done after the archaeological removal of the overlying wood; it is projected that at least three layers will need to be scanned and photographed.
- The consultant will hire a specialist to identify the wood and conduct dendrochronology, which will provide information about the date of construction of the ship and could provide insight into the place where it was built.
- City archaeologists will help Thunderbird excavate, record, dismantle, and remove the pieces of the ship, marking them for future study and possible conservation and reconstruction.
- To maintain an option for conservation, the excavated wood will need to be submerged in a wet environment, allowing time for additional research, for comparison with other potential waterfront discoveries, and for identification of a funding source for possible conservation. A City team is working to identify a suitable location for submersion.

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## The Ship (Part 2)

*January 2016*

January was a busy month for Alexandria Archaeology. Work continued at 220 S. Union Street to record, dismantle, recover, and prepare for conservation the ship discovered during December.

## Photos from January 5, 2016











## Excavation

During the first two weeks of January, archaeologists from the City of Alexandria and Thunderbird Archaeology were joined by researchers from the Naval History and Heritage Command to help record and document the ship.

After removing the interior planking of the ship (called the ceiling [even though it is on the floor] or foot-waleing), archaeologists excavated the spaces between the wood frame. Trapped between the exterior and interior planking, any artifacts recovered from these sealed contexts may help us better understand the age of the ship, the purpose of the ship, what life was like on the ship, and where our ship has been.



One of the biggest challenges archaeologists faced was how to disassemble the ship without damaging it. It was extremely well-built in the 18<sup>th</sup> century and despite being buried more than 200 years ago, remained stubbornly well-built when archaeologists tried to take it apart. It required hammers and wedges and crowbars and pry bars and jacks and even a backhoe to gently loosen and free the individual parts of this ship from each other so that they could be removed for conservation. The amount of work required to take the ship apart can be seen as a testament to the 18<sup>th</sup> century shipwrights and

laborers that originally built it.







After the frame of the ship was removed, archaeologists were left with the exterior planking or skin of the ship. In these photographs, you can see the many trunnels (or literally, treenails) used to secure the planking to the frame of the ship. Some of these wooden pegs remained embedded in the pieces of the frame when they were removed, but most were left secured to the planking. Wood fasteners like these provide several advantages over metal ones: they were cheaper to make; they will not rust when exposed to water; and will expand when wet, which (as the field crew can attest) makes them more difficult to loosen or remove.



After the exterior planking was removed, a thin skin was found stuck to the sand under the planks. Known as *oakum* or *ploc*, this hair and tar mixture was placed on the bottom of the ship to help make it watertight and to prevent shipworms from getting into the wood. Samples of this material were taken, as were samples of other residues encountered during the recovery of ship. Here, archaeologists from Thunderbird document and recover samples of this layer. These will help us learn more about how the ship was built and what it may have been used for.





Next to the ship, archaeologists found this section of intact bulkhead. This wall runs north/south and ends approximately 30 feet into the lot, right up to the public alley that ran from Union Street to the river. This bulkhead was built as a part of the banking out that occurred during the late 18<sup>th</sup> and early 19<sup>th</sup> centuries. The wall would help retain dirt and fill dumped into the river to create new land. Documentary research into the history of the lot has revealed some clues to help us understand when and why this bulkhead and ship were placed in the ground. A lease of the northern parcel on the lot dated to May 8<sup>th</sup>, 1798 states:



...that he [the lessee] will extend into the River immediately in front of the premises hereby demised of such dimensions as he [the lessee] shall find convenient an abutment or Pier that he will construct the same with good substantial logs and fill it solidly with Brushwood and Earth or such of them as will suit him best...

The bulkhead falls entirely within this northernmost parcel and there's a good chance it is the abutment referred to in the lease. The ship straddles this parcel and the public alley immediately to the south and is parallel to the old coast line that runs diagonally through the lot. There is also a good chance our ship is also related to this or later episode of filling. The Gilpin Map, also from 1798, shows the block filled in to the east as far as the Strand (Strand Street). These two sources give us a good idea when this ship was buried.

Here, the partially excavated bulkhead can be seen (center-top) next to the exposed ship hull (top left). The bulkhead came to the edge of the northernmost parcel on the property and the ship is resting diagonally largely in what used to be a public alley.





While monitoring this final phase of excavation, Thunderbird archaeologists also discovered yet another privy on the site. This one was located closer to Duke Street than the ship, oriented the same direction as the previously excavated 1755 Carlyle Warehouse, and seems to date to the second half of the eighteenth century. The soils were water screened through 1/16" mesh screen, which will allow us to recover even the smallest of artifacts.



## Research

As we disassembled the ship for conservation, we had the chance to examine some of its components in greater detail. Many of the ship's ribs show evidence of being chopped where they were joined to the keel. The starboard (or right) side of the ship has been removed and no trace of it was found during excavations. While the biggest unanswered question we have is in regards to the identity of this ship, two others we would like to answer are "why was it cut in half?" and "where is the other half of this ship?"



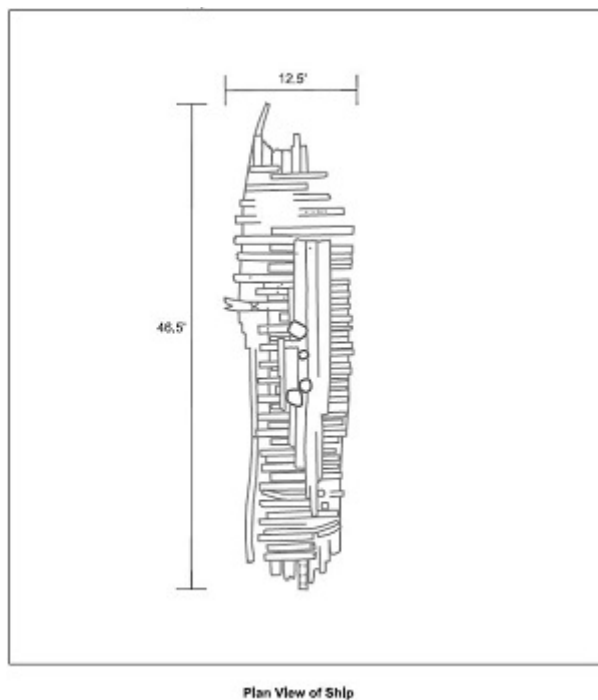
Inside this plank are many small holes created



by marine organisms. Sometimes called shipworms, these mollusks were a major nuisance as they would burrow into ships' hulls and cause major structural damage. Experts may be able to tell us something about where our ship has been by examining these holes.



After each major section of the ship was removed, the crew paused to record the newly exposed section of the ship. In addition to traditional measured plan view drawings, archaeologists also recorded the ship with a 3-D laser scanner. Laser scanners work by shooting a pulse of light (a laser) at the object to be scanned and timing how long it takes for that pulse to travel to the object, bounce off of it, and return to the scanner. Because the speed of light is a known constant (299,792,458 meters per second), this time can be converted into a distance between the scanner and the object. By including the horizontal and vertical angle of the instrument and a little bit of trigonometry, the scanner can automatically compute a three-dimensional coordinate of the point it scanned. This process can be repeated literally millions of times to produce extremely accurate digital representation of objects. This will allow us to reconstruct and study the ship digitally. Here, the 3-D laser scanner rests on the tripod just left of center below the ship.



*Preliminary archaeological plan drawing,  
Thunderbird Archaeology.*

## Conservation

After being carefully disassembled and removed from the ground, the ship was transported to a city facility where we will begin the processes of stabilization and conservation. Once here, archaeologists and city employees were joined by conservators from the Maryland

Archaeological Conservation Lab who assisted us in carefully lower the labeled pieces of wood into these water-filled tanks. The wood will remain submerged in water until it has stabilized both physically and chemically. This process can take up to several years. During this time, we will be regularly changing the water in the tanks and monitoring the condition of the wood.

