1858 Jenkins View of Annapolis

PRELIMINARY ASSESSMENTS:
Masonry, Plaster and Finishes Failure

Old Senate Chamber

Inadequate humidification & temperature control

Water-soluble paints at plaster surface water-soluble patching compounds mobilized by humidity

Recent latex paint traps water and weakens adhesion of earlier paints

Old Treasury Building

Inappropriate portland repointing

Early lime mortars saturated and failing behind portland; bricks unsupported

Bricks sitting in wet soil; deleterious deicing salts drawn up into masonry

Shaw House

Exterior paints are trapping water

Portland cement parging of chimney and wall base trap water in bricks

Cement slab against base of chimney and over to adjoining building, along with slope of ground from State Circle This leads to water ponding and infiltration against East wall

Water entering the East wall moves in and up in search of an evaporative surface, leading to paint and plaster failure inside; paint blisters outside

December 12, 2006

Report of the John Greenwalt Lee Company
Produced for Maryland Department of General Services

PRELIMINARY MASONRY and FINISHES FAILURE ASSESSMENTS:
Old Senate Chamber, Old Treasury Building & Shaw House

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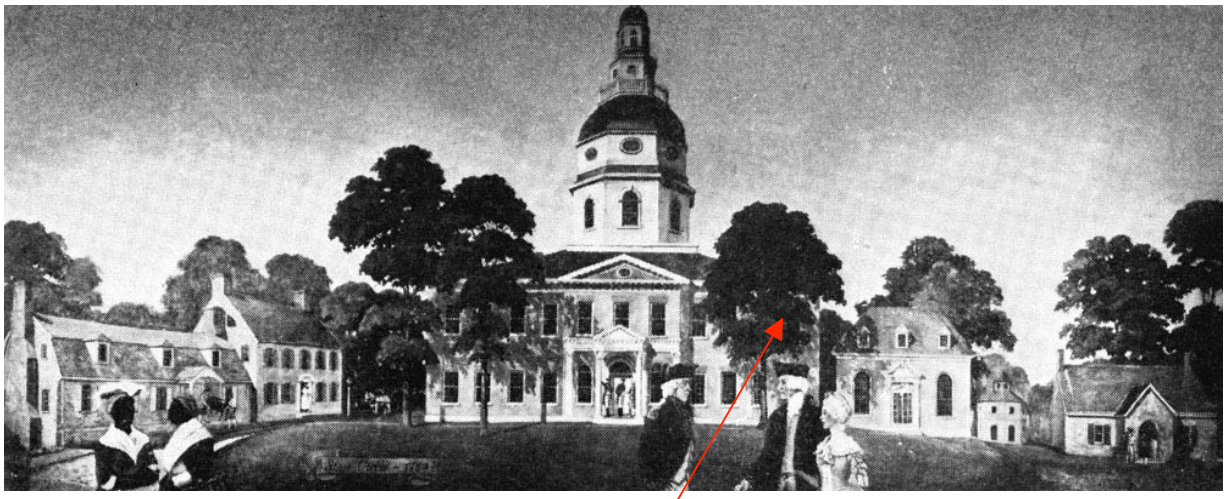


Old Senate Chamber in the Maryland State House

Maryland State House, Old Senate Chamber: Investigation of Paint and Plaster Failure

Summary

This investigation was initiated by the failure of paint and plaster at several locations within the Old Senate Chamber but especially in the corner to the right of the speaker's dais. This deterioration is a symptom of multiple causes, primarily condensation on the surface of the wall and from several sources at differing levels within the wall and is not related to exterior rainwater penetration. Rather than address the root causes of moisture, past treatments have focused on the visible symptoms, often using incompatible repair materials to cover up the damage.

In most of this chamber, plaster is directly on masonry. There is a corner steam chase built in behind the plaster directly behind the area of extensive failure by the speaker's desk. Warm air and moisture coming up through this chase from the steam generation area in the basement contributes to water in the wall.

Most of the walls in this chamber have been repeatedly patched. Many of these patches are now delaminating. This means that the failures are occurring at several layers, not just within a single layer. In some areas we believe calcimine or casein paint may be an intermediate finish. Although quite durable paints, these often fail when over-coated by modern paints. Paint microscopy will help answer this question. Recent applications of low-permeability latex paints are trapping liquid water in the walls. Also the surface tension created when latex paint dries is often sufficient to split weaker layers of paint below. Moisture buildup under the latex is causing disintegration of the various water-soluble drywall mud, spackle, and gypsum plaster repairs.

This is typical of that corner of the room: layer upon layer of incompatible paints, drywall patching compound, and beneath it all the plaster has deteriorated.

Condensation of water one of the least understood, most overlooked, and consistently misdiagnosed problems in historic buildings – is a major contributor to problems in this room. The HVAC system is inadequate to handle the moisture, particularly in this room right off the main entrance (an area of conflicting moisture and temperature extremes). In winter the exterior walls are cold and hidden from warming sunlight by overhanging trees, and subject to large amounts of water produced by the legislators through respiration and visitors entering with cold, wet clothing. Summertime tourists entering from the nearby exterior doors bring with them warm humid air into the air conditioned interior. Much of this water will condense where warm air meets cold surfaces.

The exterior masonry has been thoroughly repointed with a hard, impermeable portland cement that further traps water in the wall. There is also some evidence to suggest that the entire exterior may have been sealed up with a waterproofing treatment. Contrary to industry claims, the reduction of an evaporative exterior surface that is created by waterproofing increases water levels in porous masonry walls, often expressed through a host of problems on the interior.

The problem is multifaceted and each of the conditions we have identified are contributing. All will ultimately have to be addressed. The priority for doing that is something we need to work out with the State House maintenance team as part of their plans for renovation of the building.

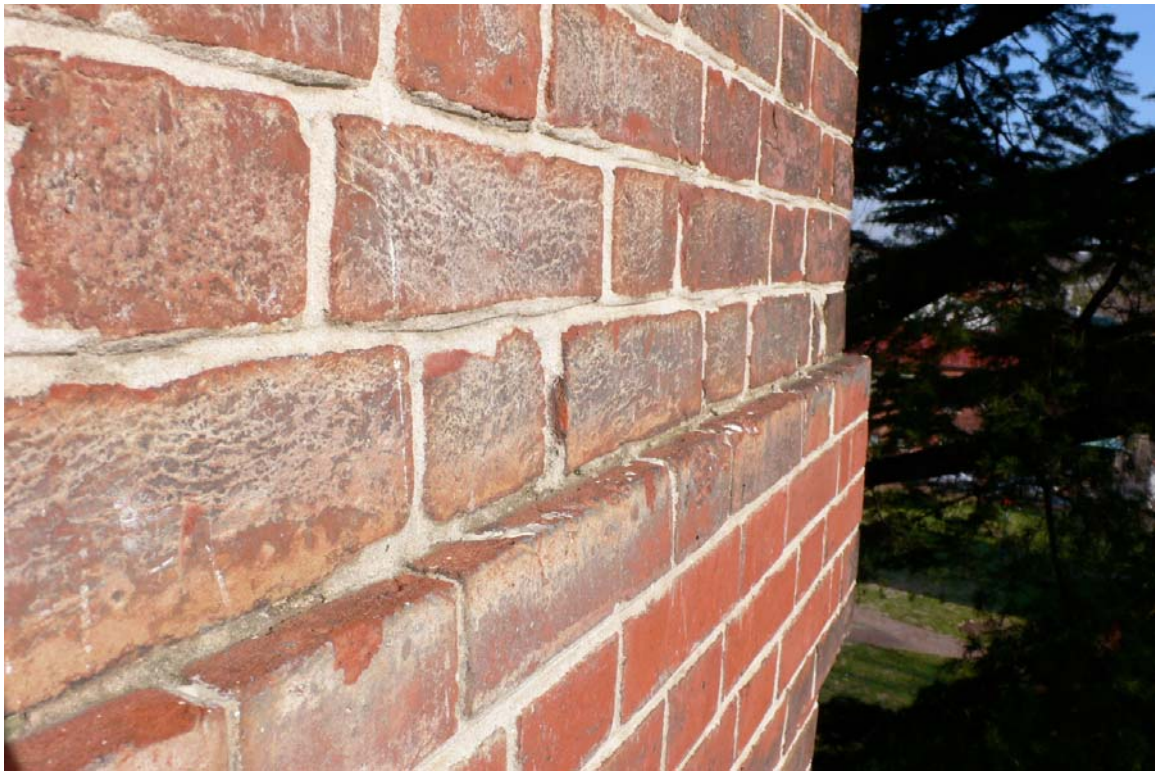
Water Sources

There is no evidence at this time of a single water leak. Water inside the masonry walls comes from several sources: interior and exterior condensation from water vapor and rain. Because the foundation consists of large stones bedded in lime mortar there is little or no capillary draw of water from the ground up into the brick walls. The exterior joints of the stone foundation have been heavily re-pointed with a dense portland cement. This pointing is trapping water and salts – most damaging being calcium chloride from deicing salts – in the remaining original lime bedding mortar. The water and salt over time will gradually break apart the cementitious bond of the mortar. There is some evidence on the inside of the walls in the basement that this is occurring.

The historic brickwork in the statehouse is porous and very absorptive but this porosity also leads to very rapid release of the water by evaporation to the exterior. Misguided attempts to seal the walls by pointing with hard portland cements and the introduction of silicone and silane coatings have reduced the rate of evaporation. These treatments can lead to an actual increase in the liquid water within the walls by reducing the exterior evaporative surface while at the same time increasing the capillary draw at cracks and fissures. In many instances, the liquid water rises within the wall and moves towards the evaporative surface of the interior wall plaster and finishes. In the past, the destructive result of the evaporation of salt-laden water such as cracking and peeling paint, crumbling and friable plaster, and eruptions of salt crystals have not been recognized as symptoms of ongoing serious water damage and have instead been dealt with cosmetically by scraping and painting.

The problems have persisted and are increasing. Attempts to deal with it “once and for all time” using patching compounds and latex paints are making it worse. Water levels are rising and creating a constant saturation of the lime and sand mortar between the bricks. Over time the lime binder is being broken apart from the sand aggregate by the rhythmic fluctuation of salt crystal formation. Ultimately the result will be bricks stacked on loose sand.

Thin portland pointing that is exfoliating off due to the failure of the lime mortar beneath it. Undoubtedly the lime mortar was sound when the portland was put over it. Now the portland is trapping water and contributing to deterioration. Large number of cracks in the portland, through and around joints, allows for the entrance of water.



This is the belt course. The portland pointing that had been there is missing in areas. The lime mortar that is revealed is not in great shape, but is also not leaking liquid water directly into the building. Directly to the left of this photograph is where the caulking had been applied. The caulking needs to be removed. If anything, it is trapping water in the wall. There is no place for any caulking in mortar joints on historic brickwork.

Liquid water condensed on the surface of the plaster in the corner of the Old Senate Chamber and running down the wall.

At the same time there are occupancy sources of water from humans respiring and modern HVAC that cannot be moved out through the walls to the exterior once the walls have been sealed from the outside. This building has consistently high visitation throughout the year, and very high occupancy during the legislative months. With exterior doors being repeatedly opened and closed, the moisture generation and condensation sources are significant.

On the day of our visit, we found the Old Senate Chamber to be quite cold and clammy compared to the rest of the building. Located directly off the main entrance, this room would receive regular thermal and moisture shocks when exterior doors are opened, allowing cold air in during the winter months (and especially during legislative sessions), where it would collide with hot air from the HVAC on the interior. Conversely in the summer, warm, humid summer air would flow into this end of the building as visitors entered to enjoy the dry, conditioned building.

Water condenses from warm air meeting cold surfaces. When occupancy in the building is at its highest – when the legislature is in session – and condensation would be most prevalent, the NE exposure of this room also ensures the masonry receives very little warming from the sun due to its low winter apex and because the mature trees against the building shaded this corner.

Because the room does not have a separate thermostat and no means to control relative humidity it is also difficult to regulate these environmental conditions and limit condensation.

Conditioning of spaces to meet our modern expectations of convenience and comfort is unavoidable. How those heating, cooling, and humidification systems are designed to accommodate building orientation, use patterns, and site conditions is something that requires particular attention. This is especially true considering the value of the historic building fabric, finishes, and the irreplaceable artwork hanging on its walls. A museum approach to design of the new HVAC systems needs to incorporate a conservation-level respect for the historic building, so that historic areas of the building are not chopped indiscriminately to accommodate new systems. One additional facet of this approach might be the creation of an unobtrusive glass vestibule at the entry to create a windbreak.

Paint Commentary

We had one preliminary sample of paint tested from the SE side of the E corner above the chair rail. We were working on the assumption that indeed the walls had been replastered and painted in the 20th century. So we are not necessarily trying to get the paint history of the room from there but to see how many layers and what types of paint. We did not pass onto the paint analyst that we thought it was 20th century plaster, but we wanted him to tell us what he saw that might be failure mechanisms within the existing paints. We fully expect in a thorough paint sampling that includes samples taken from areas behind baseboards and other trim that we might find complete paint sequences and certainly stratigraphy on certain pieces that would help us understand the sequence of changes to the room. *(More detailed analysis of the laboratory results will be part of the final report).*

Immediate Recommendations

Exterior bricks and foundation stones on the East corner of the building:

1. Determine if waterproofing treatments have been used on the brickwork: what type, when, how many applications.

2. Carefully remove several bricks from 4-6 locations to determine the depth of portland pointing and evaluate the condition of the remaining original mortar. Notations in the Atkinson-Noland report of removing wet mush from inside the walls during their probes suggests the historic mortar may be losing its binder because of a constant wet state.

3. Remove portland pointing in several locations on the interior and exterior of the stone foundations to determine the condition of the lime bedding mortar and to test for types and amount of salt present. We will also try to access several floor joists to determine their condition where in contact with the masonry.

4. Remove matures trees against the structure. This should improve evaporation against the building, provide more even warming of the structure, reduce biological growth occurring in shaded areas, remove water intrusion and water-holding against the base of the structure from mature root structures that extend at least as wide underground as the above-ground growth.

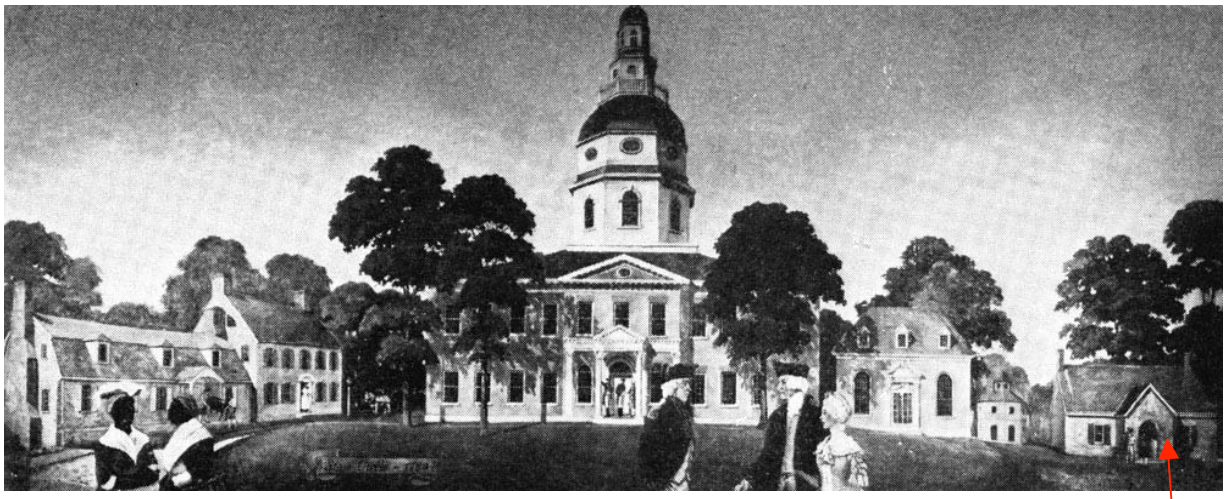
5. Eliminate the use of deleterious deicing salts around the building. The state government has made a gigantic leap in the right direction by testing the use of radiant entranceway heating of walkways. This approach should be continued around the grounds, including the sidewalks around State Circle. The result will be a reduction of damaging salts in the porous masonry of the government's stable of historically-significant buildings (including the Old Treasury Building and Shaw House), less mud and salt tracked into the buildings on people's feet that create maintenance issues inside, and a safer environment for visitors outside.

Interior:

1. Conduct a 'drop' repair panel behind the speaker's desk. We propose an in-situ conservator's drop in this area below the chair rail. Our conservation team initially begins any repair plan with a 'drop' conducted by the conservators to determine all of the repair conditions and materials, best methods for removal of inappropriate repairs, materials and procedures to be used for temporary stabilization measures, sources for compatible repair materials, and in the process, the time and cost allowances necessary to scale the repair plan up for building scale work. Specifically we would seek to learn more about the history of construction and repeated repairs that might add to our understanding of the history of changes in the room. Secondly, we would replace these areas of failure with compatible materials. We could even complete this work before the legislature is seated. Starting with fresh materials will also help us assess how they will respond to conditions in the room as they are now (not in an ideal future state).

2. Take preliminary paint and finishes samples around the room for analysis through the winter. In the case of the Old Senate Chamber, this conservator's 'drop' would include finishes sampling to understand the sequence of paints (are they all compatible, how many layers need to be stripped and what should best be used to do that, as well as color), removal of subsequent finishes, repairs to original plaster in the few places it has failed, and installation of a breathable finish.

3. Allow the conservation team to work with an HVAC designer that specializes in conditioning museum spaces that have use patterns similar to the state house to provide a system that takes the historic building, interior collections, and the site, as well as the comfort of occupants into consideration.



Old Treasury Building

Old Treasury Building, Maryland State House Grounds: Investigation of Masonry Deterioration

Summary

The Old Treasury is a building that has seen numerous deleterious twentieth century responses to problems with its early eighteenth century fabric. As witnessed by the chronicles of neglect and alarming disrepair as early 1763, this building has needed some drastic attention.

> "…the House wherein the Commissioners for Emitting Bills of Credit keep their Office is in such a ruinous State that they are for the present under the necessity of having it proped up as the Walls are much cracked…."
>
> *– General Assembly Committee Report, 1763*

Although it has outlived several crusades for its demolition, it has survived in a much altered and much abused state.

> "…it is the sense of this Board that steps be taken at once to have the old Treasury Building taken down and removed, and the Secretary of this Board is hereby required to prepare specifications for bids."
>
> *– Board of Public Works, November 23, 1905*

During the twentieth century it has endured removal of most of the historic interiors down to the brick, coating of that brickwork with aluminized and bituminous finishes before replastering, relaying of large sections of the exterior brickwork and a thorough repointing with incompatible portland cement pointing, installation of concrete slabs inside and out all of which contribute an overwhelming water and salt load with few areas for evaporation. Reading through the 1949 specifications and 1951 project summaries provides a great deal of disheartening detail about the work that was done.

> "After the walls have been thoroughly cleaned … and brushed down with wire brushes, the interior of all exterior walls, window jambs and sills, from the finish floor to the spring line of the vaults, shall be waterproofed with metallic waterproofing…finished in two coats of cement mortar plaster, mixed with metallic waterproofing and left with a scratch finish.
>
> The interior surfaces of all exterior masonry walls, whatever waterproofing occurs, are to be finished in a ¼" trowelled native asphalt damp-proofing mastic."
>
> *– Henry Powell Hopkins Laurence Hall Fowler Associate Architects, 1949 Specifications*

At this point we still need to know much more about how extensive the portland relaying has been and how deep the pointing goes, how strictly the specifications for waterproofing the interior were followed, what if any of the original doors and windows remain unaltered, and a myriad other questions before a plan of stabilization and remediation can be designed.

Although originally designed with stone foundations and ten courses of brick before the watertable, indicating the builders understood that brick in contact with soil should be avoided, the grade around the building has risen so that in many areas the belt course is partially below ground. Even late 18th century engravings show the grade much higher, so it may be that returning to exposed stone foundations is historically inappropriate, but a method of drying the lower walls needs to be introduced.

The extensive brick and mortar deterioration on the Treasury suggests both salt and water are being wicked up ever higher. Every attempt to stop the water from the outside using portland pointing has forced the water to the inside and higher up on the exterior.

Along with grading and drainage issues, the portland pointing must be removed and replaced with historically appropriate and materially compatible shelly lime mortar. All portland pargings on the exterior and interior need to be removed. Depending on the condition of the brickwork below, the bricks can either be left as they are, or if too heavily damaged, a lime parging can replace the portland, thereby allowing evaporation. Poultices can be used to remove salts introduced both from later materials, deicing salts and possibly fertilization, but salting of the ground around the building during the winter months must be stopped promptly.

mid-wall mortar failure as water must rise higher to find evaporative surface

The repair approach must be developed as part of an investigative 'drop' conducted by the conservation team. At a minimum this will include development of a drainage plan; removal of portland parging and pointing in a section of the exterior to determine the least-destructive methods of removal and assessment of the surface that is uncovered, including how many areas have been completely relaid in portland cement; development of chemically, physically and aesthetically compatible lime mortars for matching the various construction eras; removal of portland parging and opening up a section of the furred out wall on the interior to understand the state of the surface of the walls inside; and development of guidelines for the repairs through careful documentation of their work. We vigorously recommend this investigation be expanded to include mapping the history of repairs and remodeling that have occurred to maintain a perceived colonial style, including paint analysis at the cornice and several doors and windows, to understand when changes such as the installation of shutters, window and door alterations, changes to hardware, etc occurred, as well as limited investigation into the mortar history to guide future work on the building, including the installation of an appropriately sized and designed door for the handicap-accessible entrance to be installed this winter so that all work going forward can be conducted with an understanding of the building's history.

Some of the portland repointing is very superficial, but the damage it created is still extensive. The internal mortar is now only sand and much of the brickwork is only supported on the outer ½" leaving an unstable condition.

Small-pored and underfired bricks are the first to collapse from a buildup of salt (white deposits throughout the brick faces and edges of the mortar). Because of it's density, the portland cement holds water within the bricks and by reducing the evaporative surface of the wall, forces all drying to occur through the bricks, drawing the salt into their porous matrix where it expands and begins to push the bricks apart.

Water trapped behind portland parging can only find evaporation slowly through cracks and out through brickwork above. The salts are heavy around the cracks in this doorway parging. Although they release it slowly, the high surface tension of small cracks leads to increased water uptake during rain.

Again bands of failure and discoloration around the building indicate increasingly higher repairs followed by a steady rise in the water level as the water searches for an evaporative surface.

Very dark bands near grade indicate biological growth from a constantly wet environment.

Again salt at the surface and brick faces beginning to exfoliate behind the 1950s portland pointing.

Construction History:

The preliminary paint analysis from a small sample taken in a protected area of the cornice (see appendix) indicates that although the paint was stripped (burned off per 1950s specifications), there are still traces of much earlier paints. It is our belief that careful sampling in some of the more protected areas of the cornice, as well as in portions of the window jambs, may give us a much more complete paint history.

Prioritized Recommendations:

1. Thorough investigation of conditions inside the walls, under plaster, below grade, and to determine the history of repairs and alterations at all openings. Only then can a further repair approach be designed. Although removal of all portland pointing and replacement with lime mortar would be a good start, it would not be enough. The Frankenstein state of this building needs to be fully understood before more work is scheduled. This selective "demolition" must be carried out by our conservation team until we are satisfied we have all the answers.

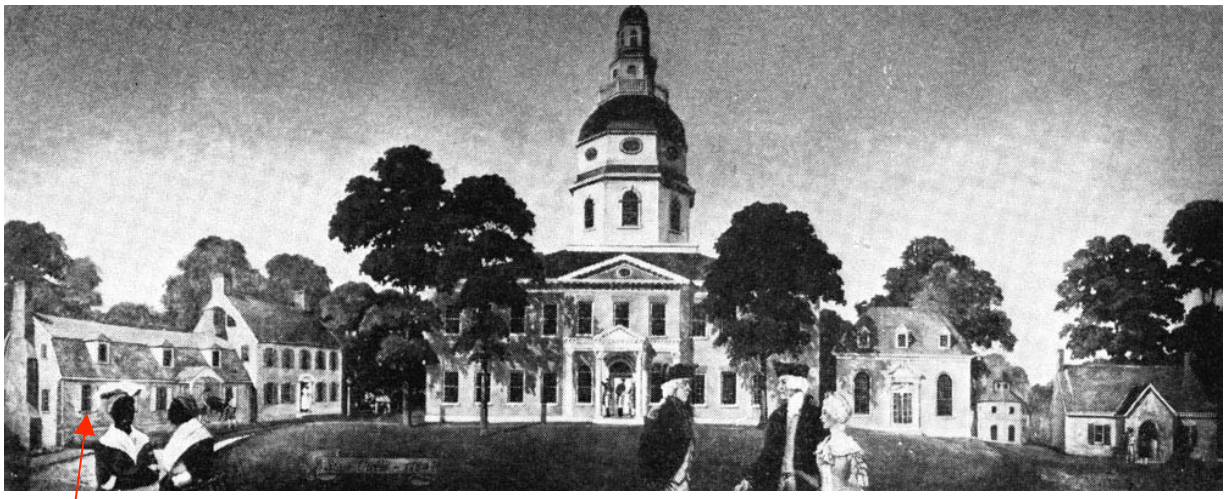
2. Eliminate the use of deicing salts near this building.

3. Begin portland cement removal both in the joints and in the form of exterior parging to allow the building to start drying out. Replace with a lime mortar that is a complete chemical and aesthetic match to the original, struck in the original manner. If the investigation can proceed promptly and the building can be tented for winter heating, this work could begin in early 2007.

4. Poultice brick walls until salts are no longer erupting through brick faces and mortar joints.

5. Remove concrete slabs against the building. Change grade and or install perimeter drains (with removable access panels) as determined during the in-depth investigation to be best advised.

Again, the exact approach, its progression, and all the details need to be determined based on the findings of a thorough investigation by the conservation team over about two weeks and commencing promptly.



The John Shaw House

Shaw House:
Identification of paint and plaster failure sources on interior

Summary

Interior plaster walls continue to erupt with salts and weeping water in spite of repeated repairs. Our team was asked to identify sources of salt and water in this wall and to devise a repair strategy that addresses the sources, not just covers the symptoms.

The Department of General Services took a good first step to addressing this problem with removal of modern water-trapping paints from the chimney exterior. Now removal of the portland pargings around the base of the building must be undertaken to allow the water and salts to evaporate from the building, rather than be trapped to the interior. Methods of addressing the ponding of water at the base of the chimney also need to be considered. Until these exterior water sources are properly addressed, repairs to the interior will be temporary. Once the building can breathe naturally and incompatible modern plasters, patching compounds and paints have been removed from the interior, repairs can be made with materials that are compatible to the original construction (lime mortar, breathable paints).

The uncovered chimney shows that a repointing campaign was carried out while the chimney was painted: the masons ground out the joints as best they could see them under paint (sometimes cutting the bricks, but generally relieving the original joints somewhere between the top of the joint and the bottom of the joint) and then pointed with a hard white portland cement. Why this was done is unclear since most of the shelly lime mortar remaining on either side of these white lines in the joint appear sound in most cases. However, it is likely that this was done as part of an aggressive, but ill-conceived attempt to control water problems lower down on the building. That repair campaign included the installation of heavy portland parging on the walls. Instead of restricting water access, this parging has lead to more extensive water problems.

The Shaw House is sited so that the end of the building with interior water problems (SE) is a repository for a considerable amount of water flowing from the sidewalk on State Circle. This water settles into a depression at the base of the Shaw House chimney that is bordered by the surrounding buildings. This swimming pool effect causes enough problems, but is also exacerbated by the deicing salts that flow in with the water.

White portland mortar **(P)** inserted into grinder-cut joints in the original lime mortar **(L)** that occurred while the building was painted lead to an unusual appearance with paint now removed. Water can now begin to evaporate to the exterior for the first time in many years. In this band just above the impervious portland parging,, salt crystals are now beginning to grow out through the brick faces and the remaining porous lime mortar.

Deicing salts are a particular problem for historic masonry because they can expand within the pores in a liquid state. These salts also hold more water in solution, allowing water to travel ever higher within buildings when trapped within walls that have been sealed up on the outside. This occurs with the portland pointing, portland parging, and latex paints. As a result of attempts to seal the water out, the only evaporative surface remaining for the walls to relieve themselves of this salt and water is to the interior faces of the walls (through the plaster). Now that the paint has been removed from the exterior of the chimney, evaporation to the exterior portions of the brickwork above the parged sections of wall is also occurring, and with it an increase in the growth of calcium chloride salt formations.

Some method of addressing the ponding of water at the base of the building or redirection of the State Circle sidewalk water would be useful and should be considered. The building needs to dry through evaporative surfaces both inside and out. On the outside, portland pargings and any portland pointing of the joints on the lower sections of the building need to be removed. The existence of several parging treatments, each a little higher or extending further than the previous treatment, acts as a record of the increasing rise in water levels in the building with each “repair.”

Salts have been growing even under the existing paint as can be seen by these blisters below the window. Salts damage underfired or smaller pored bricks the most. Two examples of the face damage that occurs to these bricks can be seen to the right of the windowsill.

The means of removal and extent of damage to original brick surfaces will not be known until after the conservator's 'drop.' Once the extent of damage below the parging is known, we can decide whether the bricks can be left visible (maybe with a tinted limewash finish instead of modern paints) or if a breathable lime parging will need to be applied to cover unattractive damaged masonry.

On the interior, latex and other non-breathable paints should be removed, as well as any patches containing gypsum (gypsum plaster, drywall mud and spackling, etc) as these do not perform well when wet. For some time after the building begins to dry out it is likely that there will be some salt blooms on the interior, but these can easily be vacuumed up and should not cause significant problems for the historic plaster. A series of clay poultice treatments on the exterior brick after the removal of parging could also reduce the salt load in the walls.

On a separate but equally urgent note, the early columns on the front of the building are showing signs of severe distress, apparently from water infiltration through a porch roof leak. The conservators should be allowed to remove these for appropriate repair to maintain this historic fabric, while the necessary front porch roof repairs are carried out.

Recommendations

1. A 'Conservator's Drop:'

The first step to remediation of the water problems is for the conservation team to carry out test areas that include removal of the parging and any other inappropriate treatments to the area behind the chimney and over to the art gallery entrance, as well as in a few small areas along the chimney and front of the Shaw House. This work will determine the best materials and techniques to be used, how best to remove the pargings and pointings without further damaging the original masonry, the condition of early brickwork, and the time and material costs associated with this work. Possible methods for addressing the ponding of water at the base of the chimney can also be discussed during this phase.

This 'drop' phase by the conservation team will provide a roadmap for all upcoming repairs to the Shaw House. The parging removal work carried out during the expanded investigation by the conservators will also begin to dry the building out, so it is not just a theoretical step. Historic building systems and their materials are quite different from the way we build today and are much misunderstood by most architects and tradesmen, as well as maintenance staffs. It is important to work within and not against those building systems, using the same materials as the original whenever repairs are needed.

All of the work carried out by the conservators will be carefully documented for use in the development of specifications, so that anyone working on this building in the future will understand not only what techniques and materials to use (as these will often be new to them) but also why, so that repairs will follow both the intent and not just the letter of the repair guidelines.

Ideally, DGS would choose an appropriate contractor to work alongside the conservators now so they can begin to learn how to use a conservation approach to parging removal. All of this work should begin immediately so that by spring the project can be well underway.

Drops have proven successful for us on projects across the country and are now being incorporated on several projects in the Federal Triangle as a means to fully assess conditions before prescribing repairs, of putting conservation and long-term solutions ahead of short-term aesthetic improvements, and as a means to train contractors in the use of unfamiliar materials and techniques. This unique approach allows first the conservators to work through the entire repair process while documenting it and tracking costs and materials, and then a chosen contractor gets to work with the conservators to learn while producing an acceptable benchmark by which all future repair work will be judged.

2. Determine history of interior finishes and plaster patches to assess compatibility.

On the interior, the conservators will analyze the sequence of finishes on the plaster to test for any incompatibility and determine how best to remove any inappropriate, water-trapping finishes that may recently have been installed in an attempt to stop the water and salt blooms. Until the water levels subside, there is little point making interior repairs.

3. Address porch roof and front column failure.

Given their delicate state and historic nature, several front columns need to be removed for repair to the conservator's shop. We would like to have our tinsmith involved in assessment of the porch roof leaks during the drop, to determine what repairs are needed, or to address them during his visit if the repair is straightforward and most economically tackled at that time.

What is a 'Drop'?

The 'drop' process starts with a coordinated proof-of-concept test that executes each of the anticipated repairs on a building or site, testing both materials and methods in the real world. This allows for a refinement of the treatments and, if documented accurately and included in the bid package, removes discussion of whether the treatment can actually be done.

This initial drop is executed by the conservation team, in the process refining the approach and tightening up budget and time estimates. The process proves that their materials are available and can actually produce the desired results; in other words, that there is a reasonable real-world delivery mechanism to execute the treatment.

A second drop comes after the contract has been awarded. It is in this phases that non-standard construction processes and materials are transferred to the contractor who must execute the bulk of the work still under the quality control of the conservators, who ultimately hold the purse strings.

There are numerous benefits to the drop, beginning with definition of most of the underlying causes and development of solutions before bid packages are distributed and following through to the client having a more clearly defined budget based on real work on the building, not theory. It is a process that realizes most modern contracting documents and processes are designed for new construction and ill-equipped to accommodate the surprises that are common in working on existing buildings, particularly historic structures. The greatest benefit may be the elimination of the adversarial relationship that often develops between client, architect, conservator, and contractor because so many of the unknowns have been removed upfront.

Field Notes and Queries from Discussions between Architect Charles Phillips and Conservator John Greenwalt Lee following their first site visit

(and before receiving extensive archival material)

The Senate Chamber and the Old Treasury are very significant structures. The Senate Chamber is arguably the most historically important room in Maryland and the age and usage of the Old Treasury make it unique. To jump in and make changes without a good understanding of the surviving evidence that defines these spaces would be like putting a road through a known and very significant archaeological site based on a 1949 survey map that contains major inaccuracies.

Senate Chamber

The speakers' niche and associated trim are obviously old and appear to be stylistically correct Georgian elements. The same is true for the major elements of the balcony. The dias of the speakers niche and the first floor panels and risers of the balcony are all recreated items that are stylistically at odds with the early elements. The window architraves, doors, mantles etc. are likewise recreated elements with more Federal antecedents than Georgian. The paintings of the period are inconsistent in their details but imply more embellishment and guts in the form of over-windows, over-doors and heavier architraves in line with the niche. One of the paintings even shows the niche with much less embellishment.

In this most historic room in Maryland, what do we really know except that it probably looked quite different when George Washington resigned his commission than it does now? Like with CSI (Crime Scene Investigation) there is always much to be learned from closer examination. With failing plaster and paint finishes, we have a great opportunity to investigate before things are covered up yet again.

Implications are that the windows and doors have been altered to the same details as in the Governor's Suite above and then remodeled in the Colonial Style. Do any of the original windows survive in this configuration? Are there any ghosts within or under the plaster around the doors and windows to confirm over-features and possibly define their outlines? What does the paint stratigraphy tell us about portions of plaster and trim scattered around the room? Was it completely replastered? Even when complete replastering occurs, fragments with intact finishes almost always find their way into gaps in flooring behind baseboards, behind cornices, in cracks around windows while the trim is off, etc. The usual assumption that all the evidence is gone is usually wrong; it just requires some effort and a desire to find it.

The best way to uncover that evidence is to start studying existing elements to determine what is original and what changes have taken place, as well as how they were designed and constructed. Then moving outward, identify the adjacent plaster as original or replacement. If it is a replacement, is it as thick as the original? If thicker, what is covered by this plaster that was previously visible? What is the age of this plaster? Are there any areas in the room that contain earlier plaster? Based on visual observation, paint analysis, conflicts with early views (paintings or photographs), select trim to be dismantled or plaster to be removed. What evidence remains of cornerboards at the chimney breast? What was the extent of the earlier mantles? Is there any evidence of the earlier panels that connected the columns of the balcony? Were they let into the columns or were they scribed to fit the columns? Either way they were likely thicker and hopefully in a slightly different location or height than the current ones so that we may have profiles of the original. One thing leads to another as the evidence builds. This room is so obviously inaccurate that it cries out to be understood.

Evidence may not be sufficiently detailed to warrant changes from the current. In other words, we may know that the trim was of a different width than the current, but not have any evidence of the profile beyond what current scholarly research would infer as being typical of the period and in comparison with original elements in the room. But there might be some evidence – such as to whether there were or were not over-features – that could be part of an interpretive exhibit and a rendering after one or more of the early paintings of the room done in the most knowledgeable detail could be created to accurately portray what is known about the room.

Then again the evidence that is uncovered may be of sufficient detail to beg a physical re-interpretation of the space.

Detailed documentation of remains from the various periods of alterations and repairs will be very helpful for future analysis and maintenance. For example, it can guide future mechanical installation routing– such as chasing a cable into the plaster between two windows – by whether is will be likely to destroy the only remaining original plaster in a room. When HVAC updates are installed, what will be lost? What would it be worth to know the extent of chases and prior rebuilds where the disruption would only be of middle aged material rather than original? When a sash requires repairs, is it a job for a cabinetmaker to make a replica or a conservator to save the original?

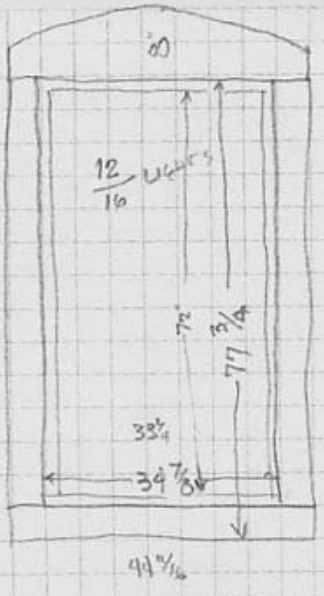
Old Treasury

The Old Treasury Building is not unlike the Senate Chamber in terms of alterations and remodeling and the questions that arise about them. Do other treasury buildings exist from this period in any English colonies or in the British Isles? Does this building type show up in contemporary pattern books or are there any descriptions in contemporary correspondence or journals? Its similarity to a church is remarkable. What could be the use of the small vault accessible only from the exterior? In a church, it could be a dead house – a relatively common feature.

The exterior shutters are additions. When were they added? It appears to be a security upgrade. The current recreated shutters are not designed for security. The front door is designed with security in mind and has unique coverplates to protect the fasteners for the hinges from being removed. Was this original or was it a security upgrade also? The ghosting evidence on the window frames suggests that the early hinges for the added shutters also had coverplates. The opening that is to receive an ADA door appears to have been smaller than the current window when created (which superficially appears to have been original). The window on the opposite gable is narrower than the typical window in the building and likely the size of the original opening in this gable. The curious thing is that the opposite window frame and sash appear to be early but the brickwork has been cut to receive the window, not laid to the window, and thus an addition.

Could it possibly be the window that started out on the other gable and was moved when an earlier door was installed? How does the mortar in the arch over the added window compare with the other mortars? Why does the building change brick halfway up the walls? Did they just run out of bricks or was there a significant hiatus in the construction? Is there a change in the mortar at this point? When did the building cease to be a treasury and what were the subsequent uses and do any of the alterations relate to the changes in usage? Are subsequent uses of particular significance? Did any historic events of note take place in the building? What is the period of significance?

Like in the Old Senate Chamber, there is an abundance of potential information about the Old Treasury to be gleaned and the last remodeling is clearly not presenting the building very closely to its appearance at any point prior to that event. We are about to embark on a change to the fenestration (installation of ADA access) with very little knowledge to support this location. It would be nice to look back and not wish we had done differently. Even the maintenance and repair activities which will likely call for the repointing of the building and removal of all portland cement mortar will obscure the evidence of history and homogenize the building if the changes, alterations, and repairs are not understood or at least documented.



1/6 VOUSOIR ARCH

7½" x 9" LIGHTS

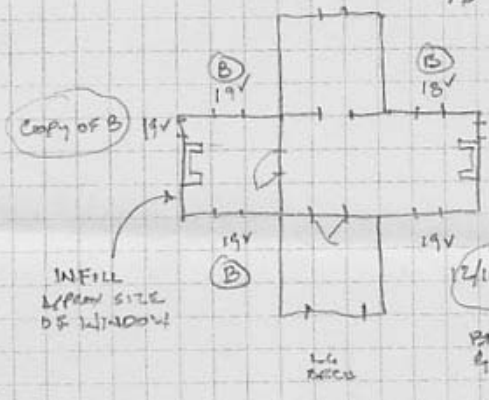
TYPE A

WINDOW ON RT SIDE
(AWAY FROM STATE HOUSE)

CHOPPED OPENING
NOT REBUILT W/ CLOSERS
BROKEN BRICKS @ JAMB

REPLACED SILL SASH LOOKS DIFF THAN TYPE B
MAYBE JUST THE PROPER PROPORTIONS OF THE LIGHTS - VERIFY

TYPE C
FLAT ARCH 9/6 HAS PATTERNED FLAT BRICKS VERIFY SASH HAS OLD GLASS



ORK "T" SHAPED BLDG HAS STONE FOUNDATION WITH BRICK WATERTABLE. 9 COURSES ABOVE THE STONE - MOST OF STONE NOW PAINTED

BRICK PORCH NOT BONDED TO PRIMARY STRUCTURE. & DOES NOT MATCH A WATER TABLE.

3 TRUSTEES DID EACH HAVE AN OFFICE?
WERE SHUTTERS ADDED AFTER ATTEMPTED BREAK-IN, DURING COLONIAL PERIOD?

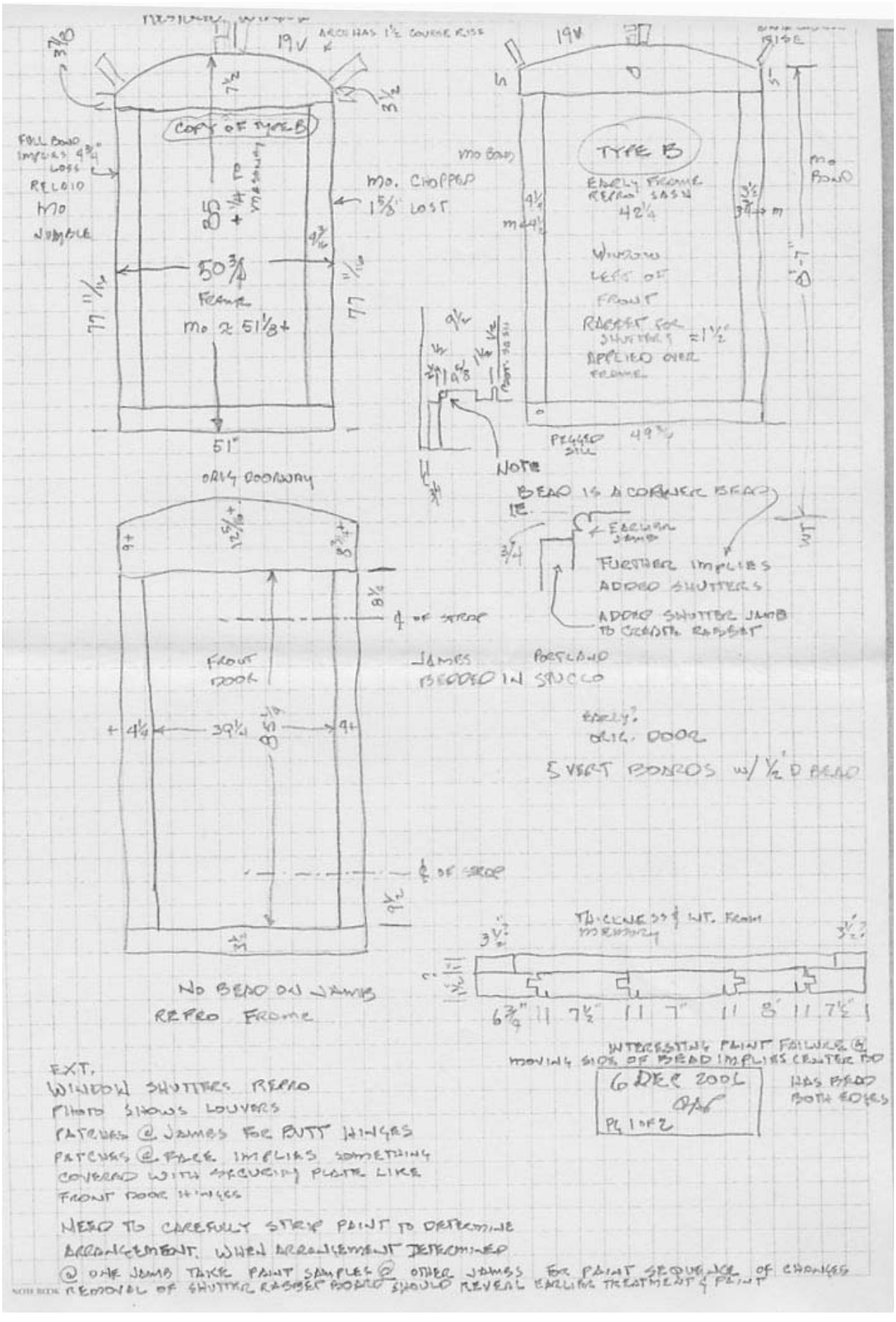
1789 ENGRAVING SHOWS GRADE SIMILAR TO PRESENT
SHUTTERS W/ PANELS SHOWING WHEN OPEN
DECAGONAL PEAKS
IS OTHER BLDG THE EARLIER STATE HOUSE?

TWO MAJOR BRICK TYPES LARGER @ BOTTOM DICKEL CAST WITH IRON MANGANESE SPOTTING - 16 COURSE ABOVE WT ON FRONT RUNNING AROUND TO GABLE WINDOW THEN RISING TWO ADDITIONAL COURSES
SMALLER REDDER BRICK ABOVE - MANY GLAZED HEADERS FOR 7-10 COURSES ABOVE WHICH NOTICEABLY FEWER BACK HEADERS
MANY PATCHES OF OTHER BRICK.

SUSPECT EARLY SHUTTERS LOOKED LIKE FRONT DOOR WHEN CLOSED - SIMILAR TO WYCK.

SIMILARITIES WITH EARLY CHURCH ARE STRIKING — COULD THIS HAVE BEEN A CATHOLIC CHURCH EITHER UNDER CONSTRUCTION OR PARTIALLY RAZED WHEN CATHOLICISM WAS BANNED & TAKEN OVER AND REBUILT AS THE TREASURY?

NOTEBOOK


ARCH HAS 1½ COVE RISE
COPY OF TYPE B
FULL BEAD IMPLIES 4¾" LOSS
RELOID
NO JAMBLE
No. CHOPPED 1⅝" LOST
50¾ FRAME
No 2 51⅛+
51"
ONLY DOORWAY
TYPE B
EARLY FRAME REPRO SASH
42¼
WINDOW LEFT OF FRONT
REBATE FOR SHUTTERS ≈1½"
APPLIED OVER FRAME
PEGGED SILL
NOTE
BEAD IS A CORNER BEAD
IE.
EARLIER JAMB
FURTHER IMPLIES ADDED SHUTTERS
ADDED SHUTTER JAMB TO CREATE REBATE
FRONT DOOR
JAMES PORTLAND BEDDED IN STUCCO
EARLY? ORIG. DOOR
5 VERT BOARDS w/ ½" D BEAD
NO BEAD ON JAMBS
REPRO FRAME
TO CLINE OF WT. FRAME MOVED?
WT
INTERESTING PAINT FAILURE @ MOVING SIDE OF BEAD IMPLIES CENTER DO HAS BEAD BOTH EDGES
6 DEC 2001
PG 1 OF 2
EXT.
WINDOW SHUTTERS REPRO
PHOTO SHOWS LOUVERS
PATCHES @ JAMBS FOR BUTT HINGES
PATCHES @ FACE IMPLIES SOMETHING COVERED WITH ESCUTCHEON PLATE LIKE FRONT DOOR HINGES
NEED TO CAREFULLY STRIP PAINT TO DETERMINE ARRANGEMENT. WHEN ARRANGEMENT DETERMINED
@ ONE JAMB TAKE PAINT SAMPLES @ OTHER JAMBS FOR PAINT SEQUENCE OF CHANGES
REMOVAL OF SHUTTER RABBET BOARD SHOULD REVEAL EARLIER TREATMENT & PAINT

INVESTIGATION

WINDOW TYPE B

SHUTTER ARRANGEMENT & PRE-SHUTTER CONDITIONS

REMOVE SHUTTER JAMB & HEAD STRIPS
UNDER WILL BE TIME CAPSULE OF PAINT & GHOSTS OF BACKBAND AS WELL AS ANY JAMB ATTACHMENTS
@ HEAD WILL BE TREATMENT OF TRANSITION FROM FRAME HEAD TO ARCH - IS IT BRICK OR WOOD
INSPECT SOFFIT OF ARCH & JAMBS OF BRICK FOR FINISHES

COMPARE FINISH SEQUENCE WITH STRIPS & FINISHES BELOW AND FROM EXPOSED BEAD OF ORIG JAMB, EARLY?
COMPARE WITH SEQUENCES TAKEN @ PATCHES FOR BUTT HINGES BELOW CURRENT HINGES
PATCHES ASSOCIATED WITH OTHER EARLIER HINGES & ATTACHMENTS.*

* DID SECURITY PLATES COME W/ FIRST SHUTTERS OR AT A LATER POINT?

THIS SHOULD PUT THESE CHANGES IN CHRONOLOGICAL ORDER & WE MAY BE ABLE TO PUT DATES TO THE EVENTS

SOME SAMPLES SHOULD BE TAKEN ON COMPARABLE LOCATIONS ELSE WHERE ON THE BLDG FOR VERIFICATION.**

** HOW DOES SEQUENCE OF FINISHES COMPARE W/ EXTERIOR?

COMPARE SASH SEQUENCE TO VERIFY DATE OF SASH - EXPECT TO BE SAME AS DISCONTINUE OF BUTT HINGES

WINDOWS TYPE A & C

WITH THE SEQUENCE ESTABLISHED FOR TYPE B
COMPARE TYPES A & C - THEY BOTH APPEAR TO HAVE GAINED SHUTTERS PROB. AT THE TIME AS TYPE B BUT WHERE DO THE EARLIEST PARTS FIT IN THE CHRONS.

REMOVE SHUTTER STRIP ON ONE JAMB & HEAD
RECORD EVIDENCE AS PER TYPE B
NOTE TYPE 'C' HAD EXTERIOR BARS ATTACHED @ HEAD*** SAMPLE FINISHES FROM BARS - HOW WERE BARS ATTACHED? ORIGINAL TO WINDOW OR ADDITIONS?

*** FRAGMENTS OF BARS REMAIN

NOTEBOOK

FRONT DOOR HOW DOES PAINT SEQUENCE COMPARE W/ WINDOWS — WHEN WAS FRAME REPLACED? DOES IT CORRESPOND W/ CURRENT SHUTTERS & SASHES ON OTHER WINDOWS?

HARDWARE: GHOSTS OF MANY LOCKS- CAREFULLY SAMPLE FROM PLUGS IN KEY HOLES & KNOB HOLES BEFORE STRIPPING FOR GHOSTS OF EARLIEST ARRANGEMENT. — CONSIDER STRIPPING EACH CAMPAIGN LAYER TO EST. ARRANGEMENT AT EACH PERIOD. AND OTHER GHOSTS

SAMPLE PAINT IN BRICK CRACKS & TRY TO ASSOCIATE W/ WOOD TRIM

~~INTERIOR — SIMILAR TO EXT. FOR WOOD ELEMENTS~~

SAMPLE RAKE BOARDS

CONSIDER REMOVAL OF RAKE BOARDS FOR FINISHES & POINTING DETAIL THAT MAY BE COVERED

CORNICE HAS MANY PATCHES / DISTURBANCES — ORIGINAL POINTING MAY SURVIVE BEHIND CORNICE.

BOLTS & PLATES ARE PROBABLY ALTERATIONS

THE CORNICE HAS A SERIES OF SYMMETRICAL REPAIRS ≈ 4 FEET FROM ENDS OF MAIN AXIS THESE MAY HAVE BEEN EARLIER RODS — DISASSEMBLE & PAINT SEQUENCE REPAIRS TO GAIN A BETTER UNDERSTANDING

MASONRY CUT OUT BRICKS & SAMPLE MORTAR @ EACH MAJOR PATCH & EARLY BRICK TYPE — ESTABLISH A TYPOLOGY OF MORTARS & ATTEMPT TO DETERMINE THE CHRONOLOGY

INSPECT VAULT CONSTRUCTION & COMPARE MORTARS

INTERIOR — SIMILAR TO EXTERIOR FOR WOOD ELEMENTS

EXTERIOR & SOME INTERIOR WALLS HAVE BEEN FURRED-OUT — PROBABLY TO HAVE A NICE FINISH THAT WON'T BE BLEMISHED BY MOISTURE PROBLEMS. THIS JUST MEANS YOU DON'T KNOW HOW BAD IT IS UNTIL IT FAILS CATASTROPHICALLY. IT IS MUCH BETTER TO CONSERVE WHAT REMAINS OF ORIG PLASTER & FIX THE PROBLEMS — VERY INTERESTING EVIDENCE OF EARLY CONDITIONS LURK BELOW ALSO.

REMOVE FURRED OUT PLASTER & FURRING, ANALYSE WHAT IS REVEALED & CONSERVE. THE SPRING LINE CORNICE ON THE FURRED OUT WALL IS PLASTER. IS IT BASED ON ANYTHING EARLIER?

THE SAME IS LARGELY TRUE OF THE PORTLAND CEMENT BASED PLASTER DIRECTLY ON THE MASONRY OF THE CHIMNEY BREASTS AND THE CROSS PARTITION. REMOVE TO ALLOW MASONRY TO BREATHE & ANALYSE DETAILS EXPOSED & CONSERVE WHAT IS LEFT OF EARLY

INVESTIGATION

PLASTER. ESPECIALLY LOOK FOR EVIDENCE OF DECORATION AROUND FIREPLACES, IE MANTLES CORNICES BASEBOARDS ETC.

THE BRICK FLOOR IS A REPRODUCTION - WAS IT BASED ON ANY EARLIER EVIDENCE? TAKE UP A SECTION AND EXCAVATE DOWN TO WHAT EVER IS BELOW - DON'T RIP OUT ANYTHING EARLY WITHOUT SERIOUS CONSIDERATION. OPEN A LARGER AREA IF IT IS LIKELY TO ADD TO THE UNDERSTANDING OF THE BUILDING -

HOW DOES THIS FLOOR LEVEL COMPARE WITH EARLIER ARRANGEMENTS - DO FRAGMENTS OF EARLIER FLOOR CONSTRUCTION EXIST OR EVIDENCE OF THAT CONSTRUCTION?

CEILING VAULT -

ROOF FRAMING -

WITH FURRED OUT WALL PLASTER REMOVED CAN EARLY CEILING EVIDENCE BE SEEN?

BASED ON WHAT IS VISIBLE PLAN AN APPROACH TO MAXIMIZE DATA RETRIEVAL & MINIMIZE LOSS OF EARLY FABRIC.

ESTABLISH AN HISTORIC STRUCTURE FILE WITH ROOM BY ROOM FEATURE BY FEATURE INFORMATION, BOTH FROM DOCUMENTARY INFO & RECENTLY CREATED DOCUMENTATION OF EVIDENCE RECOVERED. MAKE EASE OF ENTRY & ACCESS A HIGH PRIORITY SO IT CAN BE USED TO INFORM MAINTENANCE ACTIVITIES OF NEW MATERIAL