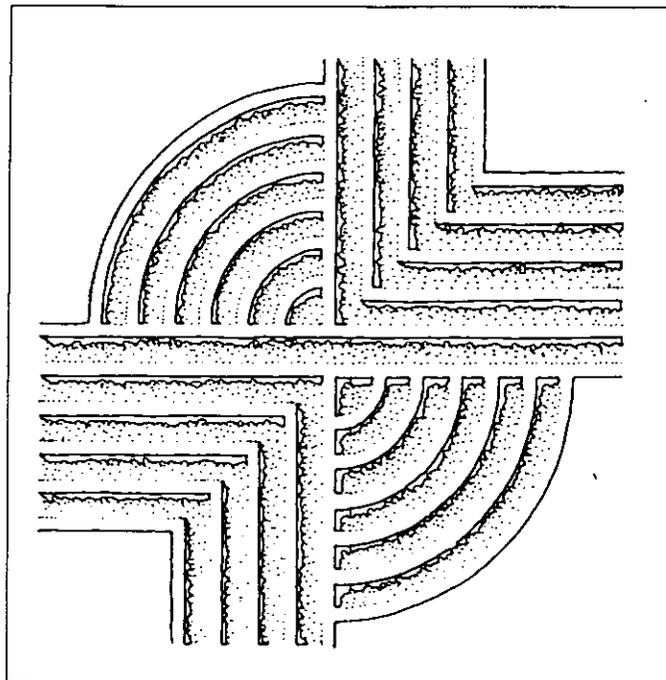


**MONITORING CONSTRUCTION ACTIVITIES AT THE
MIDDLETON PLACE MILL, 38DR16: PHASE TWO**



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MIDDLETON PLACE MILL, 38DR16: PHASE TWO**

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Introduction

Chicora Foundation was requested on July 7, 1993 by Middleton Place Foundation to prepare a proposal addressing specific archaeological investigations requested by the South Carolina State Historic Preservation Office (SHPO) in a June 25, 1993 memo from Mr. Lee Tippet (Staff Archaeologist) to Mr. Dan Elswick (Staff Architect). The need for this archaeological study was necessitated by Middleton Place's grant to stabilize portions of the mill damaged in 1989 by Hurricane Hugo, although the exact nature of the work is further complicated by the stabilization requiring both Army Corps and Coastal Council permits (since the mill is situated on water and marsh). A letter proposal addressing the concerns of the SHPO was prepared on July 13 and approved by Middleton Place on July 15. It was reviewed and approved by the SHPO on July 22, 1993 (letter from Mr. Dan Elswick to Ms. Donna White at Middleton Place).

An initial phase of the proposed work was conducted on July 26 through July 28, 1993 by the author and Ms. Natalie Adams. During these investigations a total of 48 person hours were devoted to excavations within the rice mill and also on the east edge of the structure. These excavations and the resulting recommendations were distributed as *Chicora Foundation Research Contribution 114* immediately after the work (Trinkley 1993).

The second phase of the work, consisting of monitoring work conducted by Middleton Place contractors, was conducted on October 18, 1993 and again on December 17, 1993. This second phase of work is the primary topic of this study.

The Proposed Goals and Methodology

The SHPO requested three basic tasks: (1) "a series of formal excavation units will be placed in those areas to be disturbed by project activities . . . one unit will be necessary along the external wall of the structure and . . . an additional unit will be required adjacent to the interior wall . . . [with both placed] to capture the maximum amount of information from the builder's trench and surrounding deposits," (2) the monitoring of the mill race draw down to identify and recovery significant artifacts, and (3) the monitoring of the recontouring of ground level around the structure. Accompanying this outline of tasks was the stipulation that the costs, paid for through the Archives and History grant program, should be about \$5000. Consequently, the nature of the project was controlled both by the tasks outlined and the funds available. **This report covers the second and third tasks -- the monitoring of additional construction activities at the mill by contractors retained and under the direct supervision of Middleton Place Foundation.**

The goals of the first phase, while not explicitly outlined by the SHPO, were clear from the nature of the work proposed. Since so little was known about the structure, its function, its documentary references, its construction episodes, or its archaeological footprint, it was difficult to assess the necessary level of archaeological investigation. The SHPO's proposed outline, while conservative, was presumably drafted in an effort to insure that if significant archaeological deposits were present they would be identified prior to further ground disturbing activity. Presumably, if significant deposits are encountered during any of the three tasks, the stabilization work will be halted until the SHPO determines the level of additional work necessary to protect the below ground resources of the structure. As revealed by both this study and the previous investigation, the success of these goals is questionable.

Location and Extant Environmental Conditions

Middleton Place is situated about 10 miles southeast of Summerville, South Carolina in Dorchester County on S.C. 61. It is about 15 miles northwest of Charleston on the west (or south) bank of the Ashley River (Figure 1). It lies in the Atlantic Lower Coastal Zone physiographic province, dominated by primary topography and made up of sediments dating from the Cretaceous to Recent period (Colquhoun 1969:4-5). The sediments, typical of the region, are water laid and unconsolidated sands and clays, underlaid by marl (Eppinette 1990; Miller 1971:79). The soils in the vicinity of the main settlement are Wagram loamy fine sands, while the mill is reported to be situated on excessively drained Wando sands (Miller 1971:Map 32). In actuality, the soils are more similar to the Wagram series with its loamy clay subsoils.

The mill is situated on a relatively flat terrace at the edge of the marsh overlooking the Ashley River (Figure 2). A tidal pond has been created to the southwest to feed into the raceway, while a more natural, spring fed water source is found to the south. To the west are the "butterfly" ponds and garden area of Middleton Place. The mill pond empties into a tidal slough which appears, superficially, to have been widened and deepen at some point, perhaps for the transport of rice barges to the mill for off-loading. While originally the pond at the end of this slough would have been filled at high tide, only to be emptied at low tide for operation of the mill, it is today stable, the tidal action being stopped at the spillway.

The topography is steeply sloping to the east, where today the elevation quickly ascends about 10 to 15 feet. Photographs from the early twentieth century illustrate tremendous landscape changes, including the reworking of the mill dam and spillway, and the creation (and later abandonment) of a road crossing the spillway. More recently, this area has been cut down about a foot and drainages have been cut in an effort to prevent runoff from entering the mill building (Sidney Fraser, person communication 1993).

The vegetation has been aptly described by Lewis and Hardesty as best being "explained by human interference on the one hand and by wetlands on the other" (Lewis and Hardesty 1979:3). In the vicinity of the mill are a variety of bottomland hardwoods, such as oak, gum, and cypress. In the more upland areas are primarily pines and sweetgums. The marsh slough, of course, is dominated by salt-tolerant grasses, while the freshwater ponds have a very different vegetation pattern. Most of the public area, however, is heavily manicured and it is difficult to separate original eighteenth and early nineteenth century plantings (such as the camellias introduced in the eighteenth century by the French botanist Andre Michaux and the azaleas introduced in the nineteenth century by the Reverend John Grimke-Drayton) from the extensive revisionist gardening efforts of the early twentieth century.

Climate in this part of South Carolina can be characterized as mild, with a well distributed rainfall -- features which certainly assisted the development of Middleton's gardens. The summers are subtropical, while the winters often consist of cold damp weather. The growing season is about 266 days, although major droughts are not unusual, occurring twice every 50 years (Kronberg 1971:72-74).

Summary of Historical Research and the Need for Additional Study

A brief synopsis offered by Trinkley (1993) reveals considerable documentary evidence of damage, repair, and modification to the mill. Originally constructed in the decade before the Civil War, the building is clearly a late addition to the Middleton Plantation. There is good evidence that the building was in need of repair after the Civil War, although there is no documentary evidence that it was either burned or destroyed. However, by the 1870s the building had

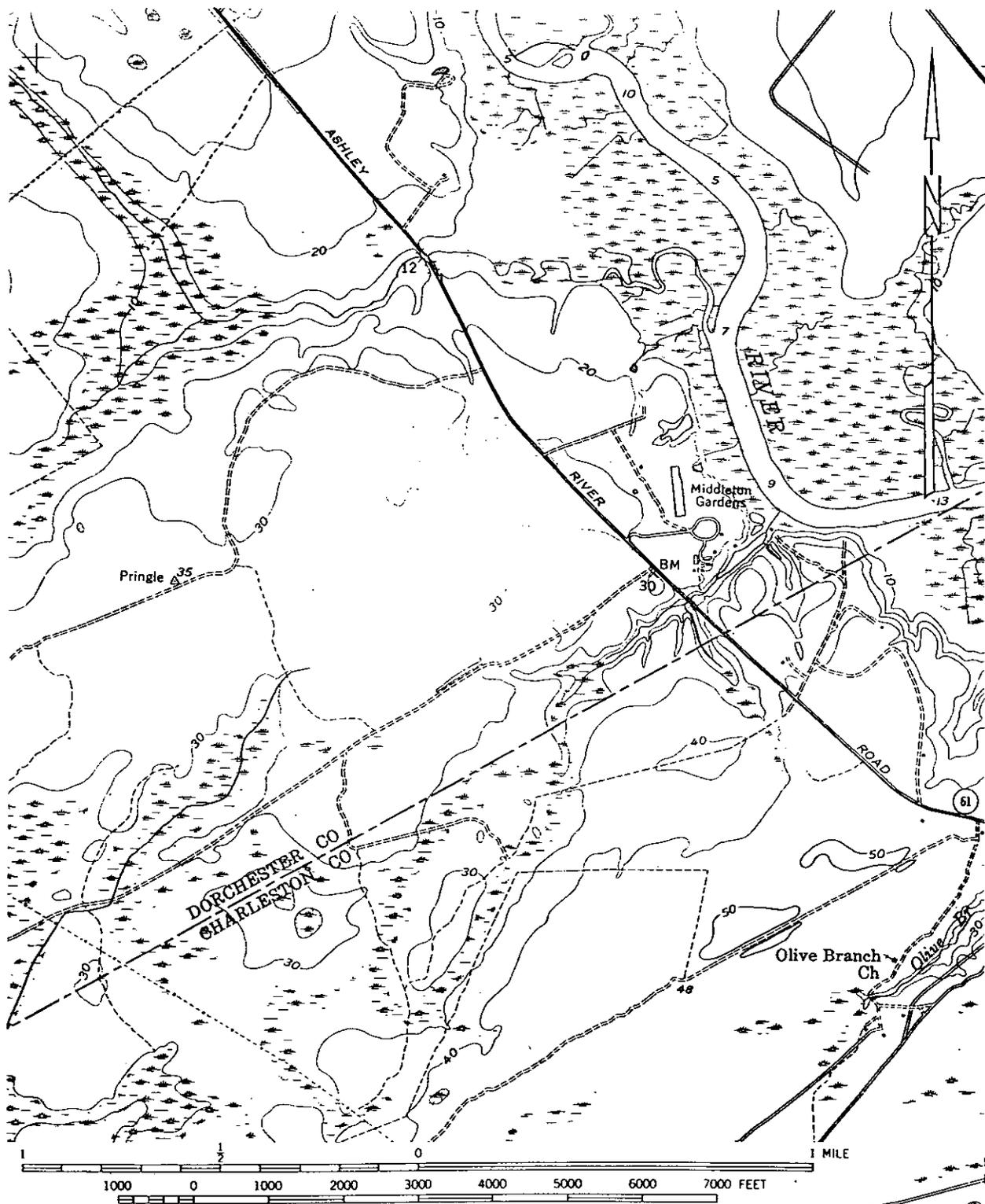


Figure 1. Vicinity of Middleton Place (Stallville 7.5' USGS, 1957, PR71).

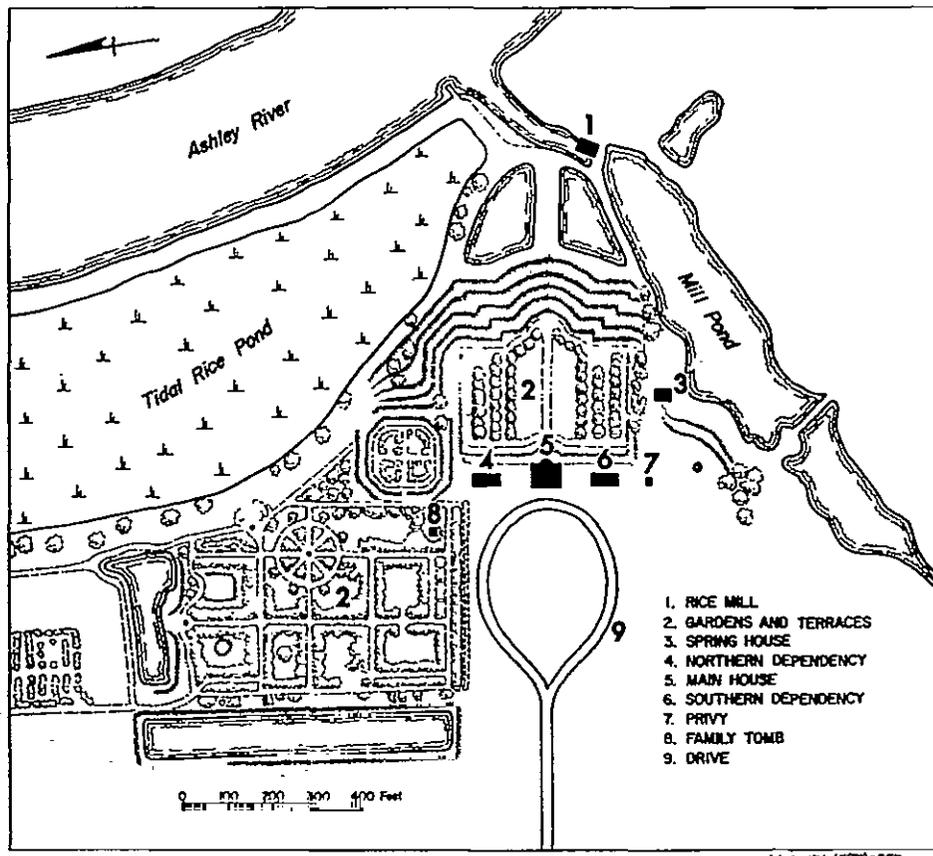


Figure 2. Middleton Place, adapted from Lewis and Hardesty (1979:Figure 4).

deteriorated to the point that rebuilding was necessary and this represents the first documentary evidence of a **major** rebuild. There was likely damage after the 1886 earthquake, although the Middleton Place records are so far quiet on the extent of the repairs undertaken, although clearly the building was put in some semblance of order by the 1920s, marking perhaps the second **major** rebuild. The third episode of **major** alterations came in the late 1920s, when the building was converted to a "tea room."

With episodes of structural renewal and alteration in the 1870s, the late 1880s or early 1890s, and again in the 1920s, it was suggested that very little of the original building fabric still existed unaltered. The historical reconstruction offered by Trinkley (1993) is at least partially supported by the physical condition of the structure and evidence of multi-rejointing attempts. Examination of construction details reveal little which appears original, but much which bears evidence of circular saw blade marks, wire nails, and industrial milling.

The historic documentation also reveals that the structure was apparently used as a mill during the late antebellum, but saw a period of inactivity while being used only for storage during the early postbellum. For a brief period in the late postbellum the mill was apparently restored, seeing activity (although it is uncertain what was being milled).

The Middleton Place archives offer a fertile field for additional historic research. Letters with even a brief mention of the mill, or milling operations, would help further our understanding of the building. Letters, receipts, or contracts for the various periods of rebuilding and repair would provide crucial evidence for alterations. Letters outlining the fabrication of the ironwork, or bills of sale to a foundry, would help our interpretation of the industrial component of the site.

In addition, more general research on the antebellum and postbellum activities on Middleton Plantation would be useful in understanding the place of this structure, and its possible function, within the broader economic context of plantation activities. Even receipts for milling and processing of rice by Charleston factors in the late antebellum might be taken as evidence that the mill was either not operating, was providing only limited service to Middleton's one plantation, or was being used for grain other than rice.

Even the photo archives offer an exceptional record of the building, and its various transitions, during the twentieth century. Regrettably, the photographic record has yet to be fully tapped to explore the changes to the building, and especially the changes to the surrounding landscape features.

Results of Test Excavations and Recommendations

The excavations conducted during Phase One, while producing very low densities of artifacts, were very valuable at better documenting the nature of the site and its construction episodes. The findings have been carefully presented in our previous study (Trinkley 1993) and will only be briefly recounted.

The structure was likely built in the late antebellum, based on the single recovered whiteware ceramic from the builder's trench. More importantly, these excavations reveal that this particular portion of the plantation had not been previously used during the eighteenth or early nineteenth centuries (or at least had not been used for any activity leaving behind archaeological remains). It was, in effect, a virgin area of the plantation, although carefully located to take advantage of what was probably a pre-existing slough. Although these studies did not conduct any research in the vicinity of the slough, it has the appearance of being "improved" as part of the overall project. The widening and deepening of the slough may have allowed it to be used by rice barges delivering crops to the mill.

The mill was located on the very edge of the marsh slough, in much of the same environmental condition as today. The builders apparently excavated into the side of the slope down to the slough for the construction of the walls, with the brick work being done from the structure's interior. This original work, even below grade, evidences generally good workmanship. Joists, perhaps about 3 by 6 inches, were built into the east and west walls (minimizing their span) of the structure every 18 to 24 inches on center, at an elevation of about 7 feet AE.

Unfortunately, the excavations revealed little concerning the function of the building, although the revealed construction details can allow some inferences. Artifacts are uniformly sparse both inside and outside the building. This, however, is not surprising given the extensive post-depositional disturbances (erosion, ditching, and filling on the outside, and eventual filling on the inside) and the nature of industrial sites. As discussed below, it is more likely that archaeological research can reveal significant details of the industrial function through large scale excavation of the structure interior.

Examination of the brick work on the exposed portions of the below grade east and west walls revealed the extensive reworking which the building has suffered. It seems clear that little of the original fabric remains except below grade. Below grade it is possible to distinguish original workmanship from later repairs, repointing, and replacement. In fact, it appears that much of the above grade brick work may be reworked when compared to that below grade.

The investigations also clearly indicate that sometime late in the building's history, probably during the early 1920s, the wooden floor, already decayed, was removed and a large

quantity of fill was placed in the building to support a rather thin concrete floor, raised above the original by perhaps as much as 0.5 foot.

The artifacts recovered from these initial excavations are sparse, consisting primarily of materials incorporated in the posited early twentieth fill brought into the structure or architectural materials dating from the various repair episodes. Diagnostic materials, suitable either for dating of various zones or gross dating of construction and/or repairs, are not present. Only one dateable ceramic was found in the excavations -- a plain whiteware ceramic. Metal artifacts, such as nails and spikes, which are present are highly corroded and offer, even after conservation treatments, little if any additional information. Window glass, not surprisingly indicates at least two episodes of replacement, with some specimens being relatively modern and others clearly representing nineteenth century material.

It is perhaps worthy of mention that while there were some materials (primarily lead and glass) which evidenced fire, we failed to find indications of a major, destructive fire. This was offered to refute the legend that the mill was burned during the Civil War. The evidence indicated that if there was a fire, it was of a very limited nature, doing relatively little damage to the building. These conclusions, like others presented from the limited excavations, were drawn from a small and biased sample of the total building site and must be interpreted cautiously.

As a result of the excavations, Chicora Foundation offered recommendations regarding the restoration of the mill. It seemed unlikely that the proposed stabilization, within and around the structure on high ground¹, would cause any major loss in either objects or information. **There might, however, be exceptions.** Most notably, we observed that **there might be archaeological materials of significance found associated with either the Zone 3 building rubble deposits or at the Zone 2/subsoil interface. Both of these areas may be destroyed during the proposed work within the mill.**

It was not possible, within the limitations of funding during the Phase One project to open additional areas to explore the extent of these deposits. At the present time we are basing our judgements on a 5% sample of the structure interior. This is an adequate sample to observe that there is a good likelihood of finding additional material, but not sufficiently adequate to predict more precisely the value of that material. Perhaps more important than the size of the sample, is its placement. Both units were placed against the structure wall, in order to answer a variety of questions. This, unfortunately, serves to bias the sample, since we failed to explore the central areas of the buildings and these are precisely the areas most likely to contain evidence (if it exists) of the industrial activities present on site.

While not precisely an artifact in the traditional sense, the excavations reveal that the building itself can contribute much significant information concerning its construction and use. For example, the presence of the joist seatings, the presence of old hydraulic cement on the interior of the walls, and the distinction between original brickwork and later repairs). **This information, however, is likely to be damaged or destroyed in the process of the stabilization.** The loss of this information, relating to the original building fabric and its use, would be tragic.

The previous discussions have outlined two areas where additional archaeological research may be able to make contributions to our understanding of this particular building, its place in the history of Middleton Plantation, and its place in the techno-functional history of rice production

¹ This statement was qualified as applying **only to the high ground areas** since we had not yet examined the slough areas to be exposed later in the project.

along the South Carolina coast. Archaeological research expanded into additional areas of the structure interior may be able to isolate evidence of the industrial nature of the structure. This evidence may include differential joist placement on the east and west walls to carry heavier loads, the existence of additional load bearing foundation wall segments, differential areas of compaction, or areas of differing artifact concentrations in either Zone 3 or the Zone 2/subsoil interface.

For such work to be successful, it would be necessary to excavate most, if not all of the structure interior. This is based on extensive work at other industrial sites and a recognition of the complexities they present. It is simply not possible to "sample" such sites and arrive at anything approaching a reasonable understanding of their organization.

In addition, the work would require the complete exposure of the various interior walls, which may require assessment by a structural engineer. This would allow the recordation of brick work patterns, exposure of cement stucco areas, and examination of joist seatings -- all features which will be destroyed by the proposed stabilization. This work, either conducted or reviewed by an architectural conservator, is likely to assist in a much better understanding of the site's "structural history."

Obviously, the mill has the potential to address many more questions -- some of rather limited research interest and some of larger regional interest. Further, the realization that there are structural details below ground, associated with original building fabric, raise additional ethical questions regarding how the structure should be treated as an object undergoing what is basically emergency conservation treatment. It seems that the standard should be "to do no harm²," which would require careful recordation of materials being exposed.

Monitoring of Interior Construction

The State Historic Preservation Office determined that no additional archaeological investigations were warranted within the structure. In spite of this, the contractor was willing to allow us to monitor his excavations in the northwest corner of the building during our October 18 site visit. The work identified the same basic stratigraphy found during the Phase One study. To the north of this original work, however, we identified the presence of at least one burned timber oriented east-west. Nominally 3 by 6-inches, this timber appeared to represent a floor joist and its discovery provides the first good indication that the building suffered a substantial fire³ at some point during its history. The excavations also continued to reveal joist sockets in the west wall and indicated that no such sockets are present on the north wall.

² One discussion of this topic is provided by Ian Bristow in "An Introduction to the Restoration, Conservation and Repair of Stone," in Ashurst and Dimes' *Conservation of Building and Decorative Stone*. What are known as the Ellis's Principles in England follow this same general line (for example, "no process of repair shall be allowed to remove, diminish or obscure . . . value as evidence"). The American Institute for Conservation sets forth similar concerns in their Code of Ethics, while returning to buildings Gersil Newmark Kay's 1992 work *Mechanical and Electrical Systems for Historic Buildings* offers nearly identical advice.

³ Defined as substantial on the basis of the timber being completely charred. Other timbers or evidence of the fire were not found, perhaps suggesting that the building was extensively cleaned of fire rubble prior to repair.

The contractor's excavations also revealed a large quantity of brick debris and mortar in the northwest corner. While at first thought to represent materials dumped in this area to stabilize the floor from washing, it seems more likely that these materials represent a building demolition phase, perhaps associated with fire. Since the excavations were being conducted by the contractor while the exterior was still flooded at high time, it was impossible to gather good evidence necessary to determine precisely what was happening in this corner of the building. Figure 3 indicates the conditions of this monitoring program, characterized by limited lighting and soils which were saturated with water.

The monitoring did not include the additional excavations conducted along the remainder of the west wall, under the current stairs to the modern second story. Consequently, we do not know what additional materials may have been present during this work. By the time of additional monitoring activities these excavations had been completely backfilled.

Monitoring of North Bank Excavations

It was possible for Middleton and contractor to excavate adjacent to the structure on the north elevation during our October 18 monitoring efforts. I understand the purpose of this work was remove roots growing into the brick work and allow for repointing. As revealed on photographs of the mill, this area was at one time marsh and has been filled in during the twentieth century (see Trinkley 1993:Figure 4).

We discovered that approximately three to four feet of the bank east of the creek consists of rubble fill. At the edge of the bank are a series of three approximately one-foot in diameter tree trunks, buried in the marsh mud and oriented with the bank. These trees apparently served as



Figure 3. Examining contractor's excavation in the northwest corner of the mill interior.

a retaining wall. Behind the cribbing fill was placed to stabilize the bank. Through time this cribbing eroded into the creek and the rubble fill created a new bank slope. The monitoring was unsuccessful in determining when this cribbing and fill was placed, although the photographic evidence suggests it post-dates ca. 1930. The excavations also revealed that once original clay was reached to the east that there was only about 0.2 foot between the subsoil and the building wall, indicating that the north wall was laid up within the structure -- as originally suggested based on the excavations.

This work also revealed that the fuel oil tank buried on the north elevation of the building was leaking. The soil was saturated with oil, there was a very strong smell, and an oil slick formed on the water. We recommended that the tank be removed, believing that the environmental damage from the tank is likely much greater than any possible loss of archaeological data.

One log of the cribbing was cut back about two feet north of the structure, while the others were left in place. We recommended that the cribbing not be further altered.

Monitoring of Water Draw Down and Mucking

We were able to only briefly begin the investigation of the spillway since the sandbag dam was incomplete on the day we were asked to be present. Consequently, the water draw down was not complete until about 3:30 pm. While monitoring normally involves the examination of routine construction activity it quickly became apparent that normal construction activities such as excavation and even walking were likely to cause damage and loss to archaeological information. The draw down and subsequent examination revealed the presence of an iron door at the base of the spillway dam, a brick retaining or channel wall, and a number of timbers. At the base of the iron door in the spillway is what may be the remains of the wheel, although time did not allow any reasonable examination of the device. Whatever its function, our excavation revealed that it was both pegged and bolted, was in excellent condition where buried by mud, and that it was within 0.5 foot of the structure wall.

These partial findings presented a variety of problems, including their proximity to the structure's west wall (within 0.5 foot) and their fragile condition (they cannot stand any weight nor can they be allowed to dry out). In addition, there was a likelihood that additional materials would be found as the contractor began to muck out against the foundation wall. The small amount of water screening undertaken during this work revealed evidence of window glass, ceramics, and wooded objects (pegs and other manufactured materials).⁴

In an effort to allow some work to progress, we recommended avoidance only of the area from the middle of the building southward. We also draped the machinery in plastic in an effort to keep in moist and instructed the contractor that it would have to be kept moist during the entire project.

Based on these initial findings, we recommended to Middleton Place and the State Historic Preservation Office that this area be explored using at least some minimal degree of control, perhaps water spray and trowel, to gradually expose the remainder of the materials present. Until the area was further exposed, we recommended that no disturbance be allowed in this area. Specifically, we noted in a October 19 letter to Middleton Place and the State Historic Preservation

⁴ Only samples of objects not requiring conservation were collected. Wooden objects found during this initial monitoring phase were left in place since we recommended additional monitoring and recovery efforts.

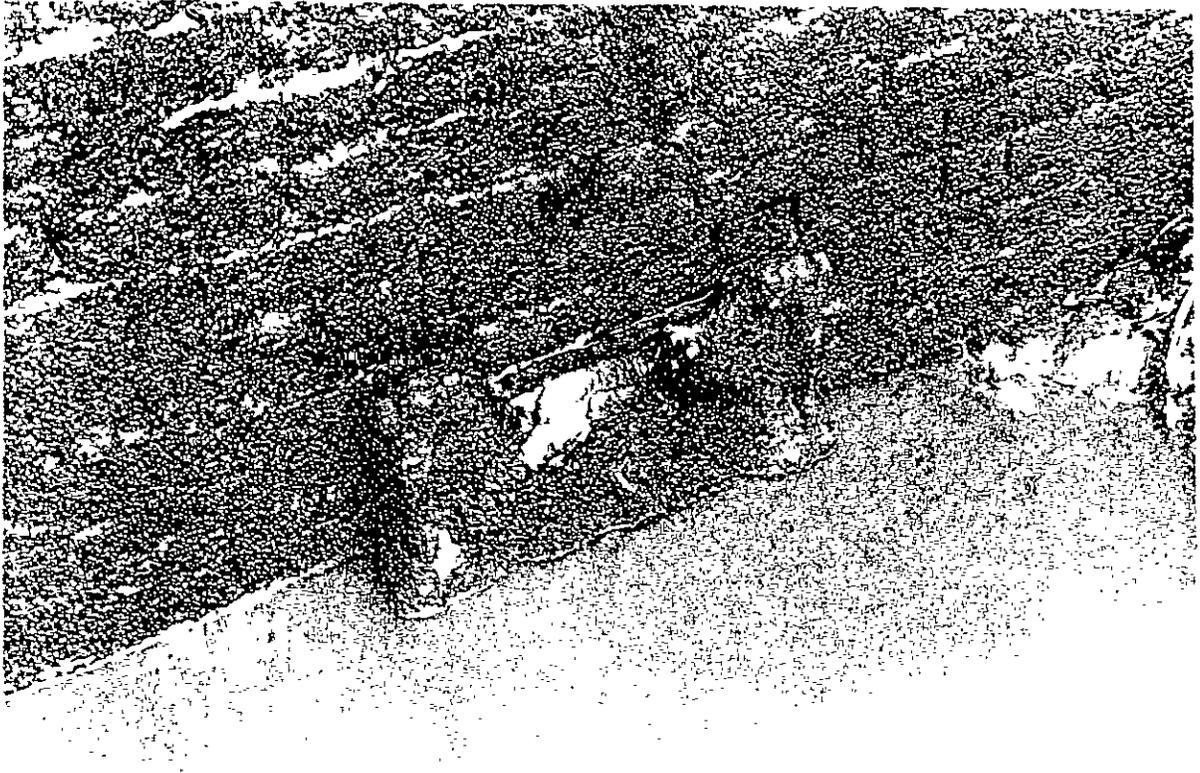


Figure 4. Cast iron door at the base of the spillway, partially exposed by water draw-down.

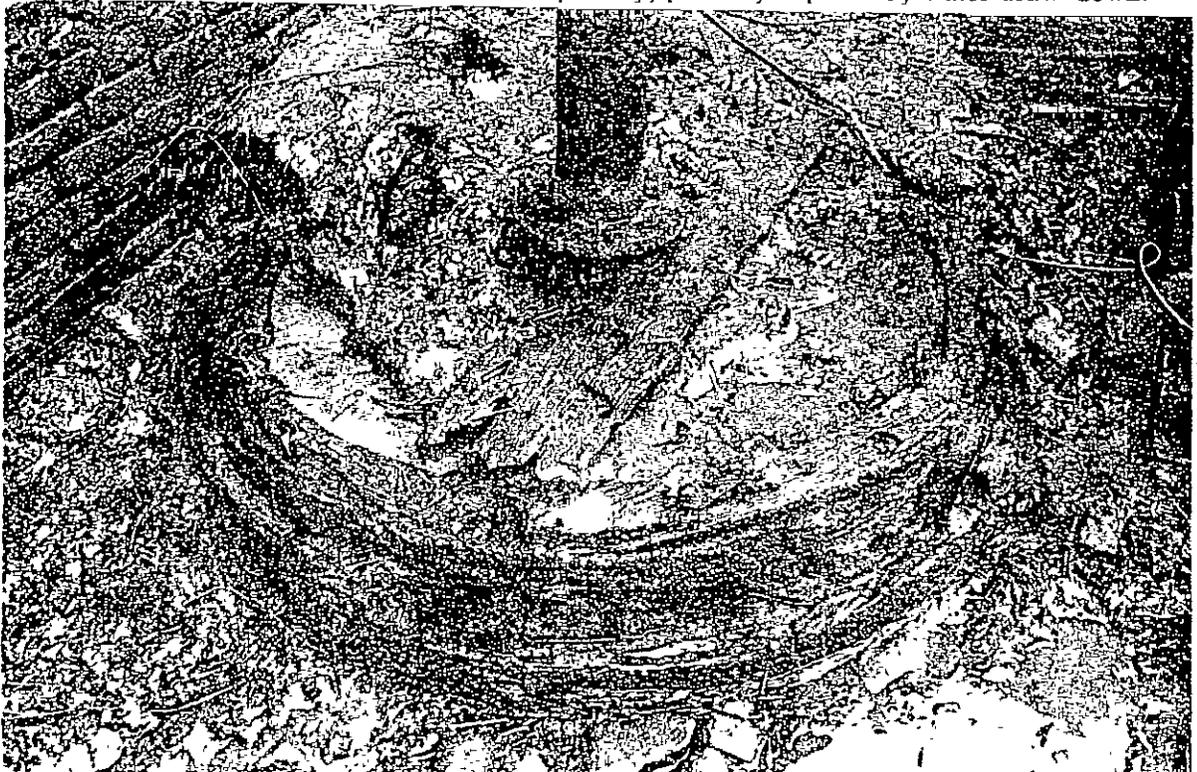


Figure 5. Possible turbine wheel partially exposed, showing condition of wood and proximity to the mill.

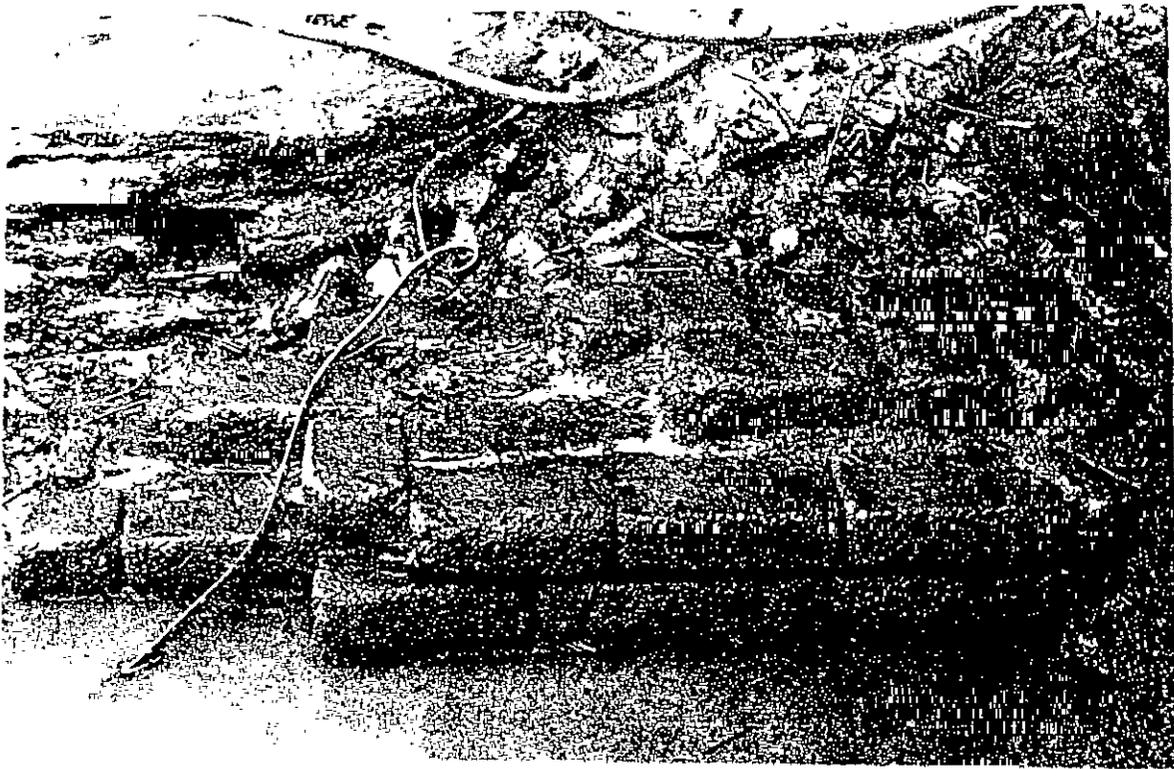


Figure 6. Brick channel wall west of turbine. View to the east.

Office that work should not be conducted above the remains since they will not be able to withstand the weight of plywood, ladders, and workmen. We also stipulated that the wood must be kept wet to prevent warpage, spalling, and deterioration. After the investigations, we also recommended that the area be repacked with marsh mud and sand. This restoration effort would be essential to insure long-term protection and preservation of the wood items.

We also strongly recommended that no efforts be made to modify the spillway, given the extensive brick work present and our inability to fully explore the project area during the October 18 monitoring effort. Any modifications of the spillway were likely to have damaging effects on the artifacts and industrial features.

Based on these recommendations, the State Historic Preservation Office, in an October 26 letter from Mr. Dan Elswick to Ms. Donna White, concurred that:

the area from the middle of the building towards the spillway represents an archaeologically sensitive zone. We concur with the recommendation that this area be excavated only with the recommended method (trowel sorting with the aid of a low pressure/low velocity spray hose).

The following day an additional letter was distributed by the State Historic Preservation Office which indicated that:

We understand that the archaeologically sensitive zone in the spillway will not need to be disturbed for the stabilization work. Archaeological investigation of this area would be needed if the stabilization work would disturb features in this zone.

A conversation with Ms. Donna White on that same day revealed that Middleton Place had changed the scope of the contractor's job, eliminating the excavation and stucco work below grade along the southern half of the western mill wall. We were informed that there would be no work in this area, and that no scaffolding would be constructed over the sensitive area and features. In response to this telephone call, Chicora confirmed the conversations by letter dated October 28, 1993, which also included a sketch map of the affected area.

During our subsequent monitoring visit on December 17, we discovered that the contractor had disregarded this change notice -- not only placing scaffolding over and around the previously identified features, but had also mucked adjacent to the building and placed the originally proposed stucco coat (Figures 7 and 8). This work almost certainly resulted in the loss of significant archaeological information, through the construction of the scaffolding, the mucking of soil adjacent to the building foundation, the application of the stucco coat, and the possible exposure of the wood remains to damaging environmental fluctuations. At the time of our second phase of monitoring the tide was again high, so we can not determine the amount of this damage. Nor could we determine if the area was stabilized to prevent additional damage through erosion, periodic wetting and drying, and growth of vegetation.

At this point it seems likely that the most serious damage has been done. We do, however, recommend that the mill be examined at the lowest possible tide to determine if any measures can be taken to minimize the damage and secure the archaeological features.

Monitoring of Exterior Grading

The primary purpose of the exterior grading was to determine if any archaeological

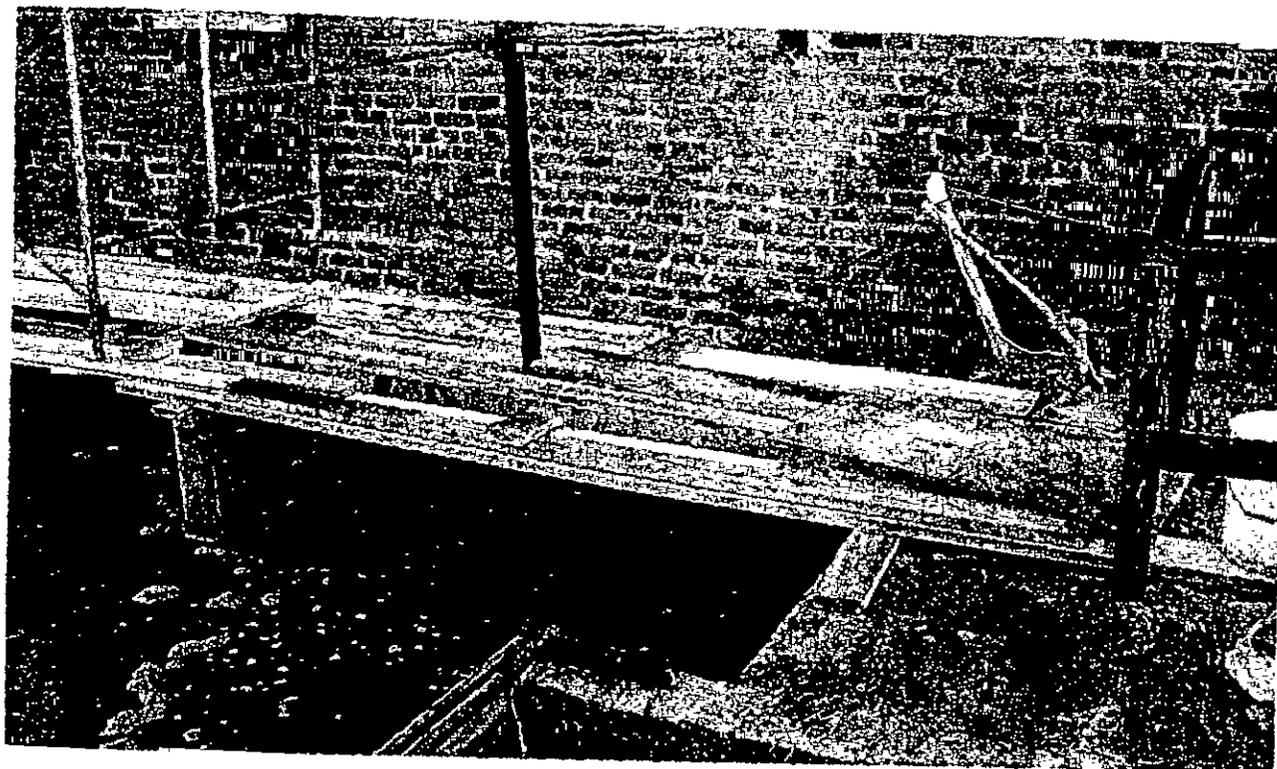


Figure 7. Scaffolding placed over and around area removed from the scope of work.



Figure 8. One inch stucco cap placed on wall in area of archaeological features.

features might be uncovered during the work. The likelihood of such discoveries was enhanced by the need to remove upwards of two feet of soil in the resculpturing efforts. In addition, it was hoped that by carefully controlling the grading process, it would be possible to address some of the questions regarding landscape modifications over the structure's history.

Regrettably, it was impossible to do either. When we arrived on-site December 17 to monitor the grading we discovered that Middleton Place's contractor had already stripped the soil down nearly two feet on the east elevation of the structure out a distance of almost exactly five feet (Figure 9). While Middleton Place was originally going to grade the remainder of the yard area during our presence, it was decided that the Archives and History grant required monitoring only within five feet of the structure -- the exact area which had already been destroyed by the contractor. Consequently, while we monitored some minor grading and filling adjacent to the building, the context of the area had already been destroyed and no additional information could be obtained. We presume that the remainder of the yard area has been graded subsequent to our December 17 visit and is no longer capable of addressing any substantive research questions.

Summary

It is clear from these discussions that the monitoring program undertaken at the Middleton Place Rice Mill was less than successful. It is possible that significant archaeological information, specifically data relating to previous construction and demolition episodes, was lost through excavation in the structure interior by the contractor. It is likely that fragile resources were damaged through the excavation and application of stucco on the exterior wall in the vicinity of extensive deposits of archaeological material. It is possible that information related to the landscape of the structure, especially data relevant to our understanding of previous topography, was lost through grading operations.



Figure 9. Photograph showing previous excavations by the contractor adjacent to the rice mill. String lines indicate finished grade, revealing that much of the work monitored was filling this previous excavation. View is to the south from the northeast building corner.

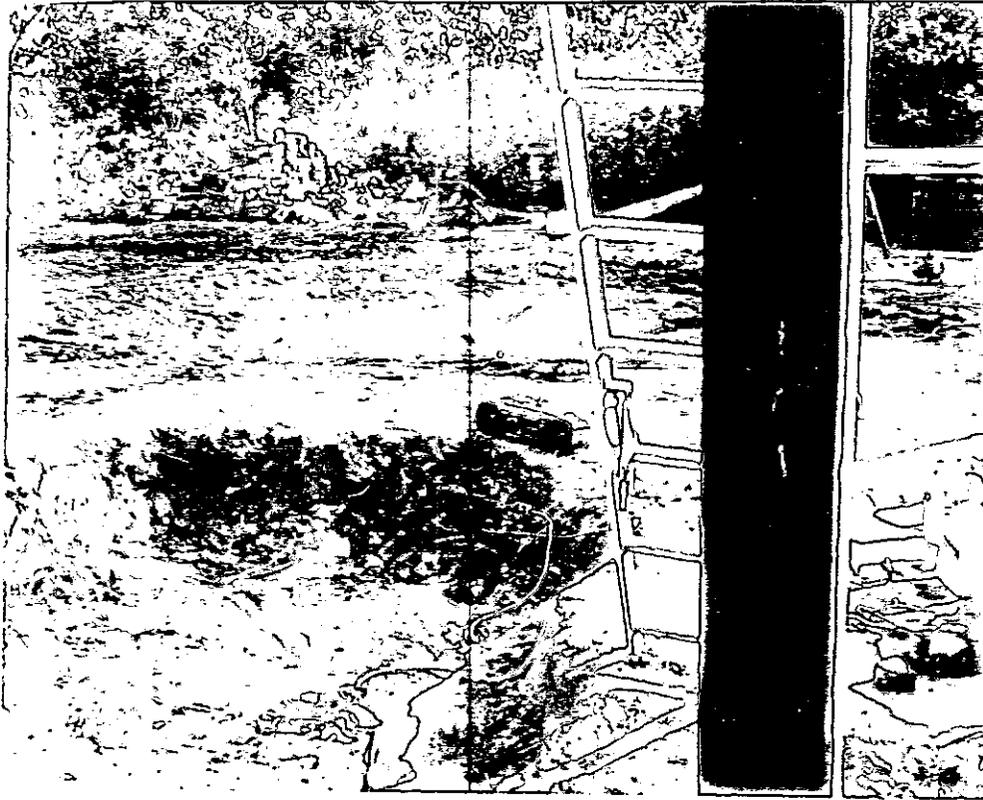


Figure 10. Excavations 10 feet away from the structure conducted by the contractor, as well as extensive rutting and construction related damage in the yard area.

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