



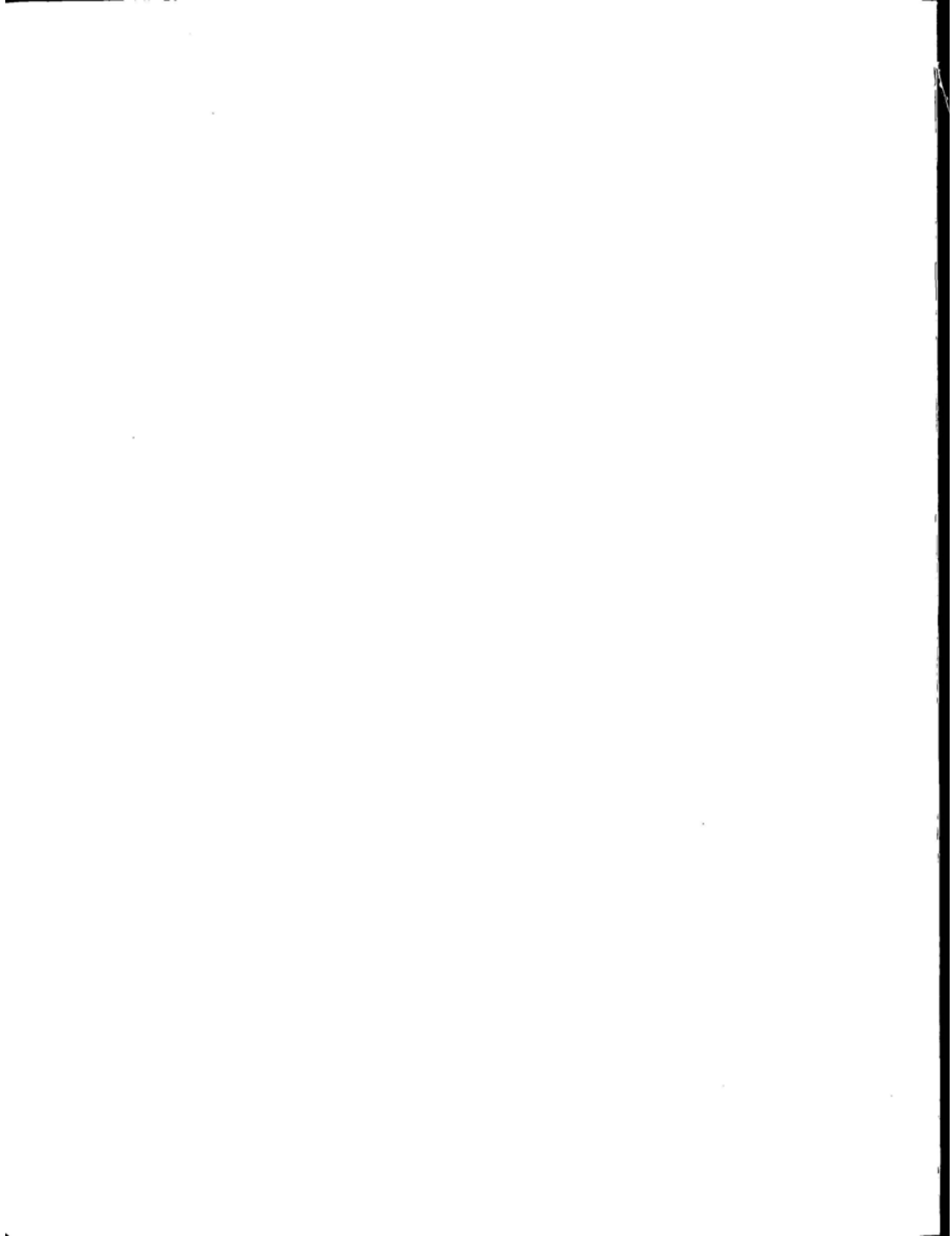
# Magnolia Plantation Gin Barn Historic Structure Report



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H3017

June 15, 2004

Dear Colleague:

In accordance with the National Park Service "Guidelines for the Management of Cultural Resources," we are pleased to provide you with copies of three Historic Structure Reports for buildings at Cane River Creole National Historical Park: the Big House at Oakland Plantation, Prud'homme's Store, and the Gin Barn at Magnolia Plantation. These reports are part of our ongoing effort to provide comprehensive documentation and management guidelines for the cultural resources of National Park Service units in the Southeast Region.

These Historic Structure Reports were prepared by the Southeast Region's Division of Cultural Resources, Historic Architecture Branch, but reflect and incorporate the work of many others who have conducted critical historical research and building investigation on these buildings over the last decade. We hope this information will prove valuable to those interested in the historic architecture of Oakland and Magnolia plantations.

Sincerely,

Dan Scheidt  
Chief, Cultural Resources Division

Enclosures

CANE RIVER CREOLE NATIONAL HISTORICAL PARK  
MAGNOLIA PLANTATION

~ GIN BARN ~  
HISTORIC STRUCTURE REPORT

Cultural Resources, Southeast Region  
National Park Service

2004



**Cultural Resources  
Southeast Region  
National Park Service  
100 Alabama St. SW  
Atlanta, GA 30303  
(404) 562-3117**

2004  
Historic Structure Report  
Gin Barn  
Cane River Creole National Historical Park  
Magnolia Plantation  
LCS#: 91561

Previous page, Gin Barn, 2001

**T**he historic structure report presented here exists in two formats. A traditional, printed version is available for study at the park, the Southeastern Regional Office of the NPS (SERO), and at a variety of other repositories. For more widespread access, the historic structure report also exists in a web-based format through ParkNet, the website of the National Park Service. Please visit [www.nps.gov](http://www.nps.gov) for more information.

# Magnolia Plantation Gin Barn

## Historic Structure Report

Recommended by: *J. Anthony Laredo* *August 8, 2002*  
Acting Chief, Cultural Resources Stewardship, Date  
Southeast Regional Office

Approved by: <sup>*Acting*</sup> *Eric Z. Ford* *August 22, 2002*  
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Cane River National Historical Park

Concurred by: *Cheri Prose* *8-3-02*  
*FOR* Regional Director, Southeast Region Date

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# Foreword

We are pleased to make available this historic structure report, part of our ongoing effort to provide comprehensive documentation for the historic structures and landscapes of National Park Service units in the Southeast Region. Many individuals and institutions contributed to the successful completion of this work. We would particularly like to thank the staff at Cane River Creole National Historical Park, especially the park's superintendent Laura Soilliere and its historical architect Eric Z. Ford; Mary Lyn Warner at the Cammie G. Henry Research Center, Watson Memorial Library, Northwestern State University of Louisiana; and the staff at the Southern Historical Collection, University of North Carolina, Chapel Hill, NC. We hope that this study will prove valuable to park management and others in understanding and interpreting the historical significance of the Gin Barn at Magnolia Plantation.

Dan Scheidt, Chief  
Cultural Resources Division  
Southeast Regional Office  
National Park Service



# Executive Summary

Dating to the third quarter of the nineteenth century, the Gin Barn at Magnolia Plantation is one of the most prominent buildings in that unit of the Cane River Creole National Historical Park. The building itself represents a type of gin that is significantly different from gins built after the 1880s and its ginning machinery and cotton presses are extremely important industrial artifacts,

*Historical Summary:* Much of the historical information in this report is found in research compiled by Cane River Creole National Historical Park since 1994. Most important have been Dr. Ann Malone Rose's historical overview and Dr. Bennie Keel's archaeological investigation of Magnolia, both of which have been indispensable to the present study. Additional research focused on contextual information needed to understand the significance of the building's use as a gin barn, including visits to two sites in Georgia and Alabama where Munger-style "system gins" similar to the one at Magnolia have been restored to operation. Numer-

## Executive Summary

ous documents, books, and other materials at the Cammie G. Henry Research Center of the Watson Memorial Library at Northwestern State University of Louisiana in Natchitoches have been essential to compilation of this report. Finally, the Prud'homme Collection in the Southern Historical Collection and other collections at the University of North Carolina, Chapel Hill, provided important contextual information for the Gin Barn.

No historic photographs of the Gin Barn have been located except for a photograph that shows a small portion of the building after the 1939 tornado. A gin house has been documented on the site as early as 1835 and the "Gin" shown on the 1858 plat of the plantation is clearly in the vicinity of the present building. Physical evidence indicates that it is very unlikely that the present building dates to the 1830s, but rather to the third quarter of the nineteenth century. Extensive but not exhaustive research in a variety of historical records failed to find definitive proof that LeComte's gin at Magnolia was destroyed during the Civil War, leaving open the possibility that the Gin Barn dates to the 1850s.

*Architectural Summary:* The building has been recorded by the Historic American Buildings Survey (HABS) and by the Historic American Engineering Record (HAER) and that documentation has greatly informed the present study. Additional building investigation has focused on establishing the historical evolution and architectural integrity of the present structure. The 1995 report from Ann Beha and

Associates' structural inspection and assessment of the building has also been useful.

The present configuration of the building and its machinery represents the last stage of the building's evolution as a gin barn when the Hertzogs upgraded their operation to one of Munger's new "system gins" in the 1890s. The present machinery is at least the third generation in the building and is significant; but the wood-screw cotton press is one of the park's most-important artifacts. It is one of only six wood-screw presses still in existence, one of only two of its type, and the only wood-screw press that remains intact on its original site. The building itself is most significant for having been originally constructed to house both gin and cotton press under the same roof, an important advance in the operation of plantation gins in the third quarter of the nineteenth century.

In 1939, the building was damaged by a tornado which also destroyed the adjacent engine house. In making repairs, the building was significantly altered. After the building was acquired by Museum Contents, Inc., in 1977, there were other repairs and alterations. Finally, the NPS replaced the entire roof system in 1996, significantly altering the building's historic character again.

Although most of the building's remaining historic materials are in good condition, an engineering report by the Denver Service Center (DSC) in July 2000 raised questions about the building's structural stability that had not been noted in Beha's analysis of the building. DSC's

## MANAGEMENT SUMMARY

proposed remedy would further alter the building's historic character.

*Recommendations:* In essence, the recommended approach to treatment of the Gin Barn intends to maximize the building's interpretive value while maintaining the present character of the plantation- - both of which are goals implicit in the park's GMP. While the Oakland unit of the park is slated for more ranger- led activities and demonstrations, the GMP outlines a "quieter, more contemplative discovery experience" for visitors to Magnolia, a goal that would not be well- served by any effort to reconstruct the entire gin complex. So as not to interfere with the stated goal of preserving the cultural landscape as it evolved after World War II, the exterior of the building should be preserved in its present state.

However, the building's primary significance lies in its construction and use as a gin barn and not in its altered state as a hay barn (a use that is not even mentioned in the NHL designation report). The GMP clearly intends the gin and press to be the focus of interpretation, something which cannot be reasonably accomplished while preserving all of the features of the post- 1939 hay barn. In order to allow interpretation of the building as a gin barn, the interior of the building will be rehabilitated to accommodate visitor access. The wood- screw cotton press and gin machinery that remain in the building will be conserved for exhibit *in situ*. Changes in the existing building will be limited to those that are necessary to meet the Park's interpretive goals for the site and to insure continued preservation of the wood-

screw press, the ginning machinery, and the building itself.

Repair and replacement of missing flooring in at least part of the building is clearly a necessity under any scenario that provides public access to the building. However, that need not include replacement of the now- missing flooring that was laid across log joists in 1939 and which obscured the base of the cotton press. Replacement of the ground level flooring as it existed prior to 1939, as indicated on the plan at the end Part II, would allow visitor access to the building and, at the same time, would help give visitors a clearer understanding of how the building functioned when the gin was in operation.

Visitor access to the second floor, where most of the gin machinery is located, is restricted by the steep narrow stairs (1939) that provided access when the building was a hay barn and by floors missing at the northeast corner of the building, removed in 1939, and at the west end, scavenged for fire wood by tenants over the years. By reconstructing the missing floor and historic stairs in the northeast corner of the second floor and replacing the missing flooring at the west end of that floor, visitors would be able to view the entire floor, including the gin machinery at one end and the loading deck for the wood- screw cotton press at the other. Handicapped access to the second floor is not practical without an elevator, which would be a major intrusion on the building's historic character. Since the ginning and pressing operation will require substantial interpretation for most visitors anyway, wayside exhibits un-

## Executive Summary

der the arcades could help give all visitors, including the handicapped, a comprehensive understanding of the building's historic features and function.

### Site

- Conduct complete archeological investigation around and within footprint of present building.
- Repair and repoint cistern; preserve engine base.
- Define appropriate routing of visitors around building.
- Keep perimeter of building free of vegetation.

### Foundation

- Preserve existing historic brick and stone piers (on interior) and brick foundation to steam-powered press.
- Add additional piers if necessary to provide adequate support for anticipated loads (see below).
- Repoint historic masonry as necessary.

### Framing

- Repair areas of rot and termite damage in sills and other framing members without replacing any timbers.
- Reframe west end as necessary to provide door opening.
- Secure end sills.
- Engage services of a structural engineer with expertise in preservation of

heavy timber construction to conduct structural analysis based upon building's repaired condition and proposed use and to provide recommendations for repairs.

- Consider alterations to program of use, including restricting visitor access, to avoid additional major structural intervention in the building.

### Doors

- Repair interior and exterior doors as necessary and install appropriate latches.
- Repair all shutters as necessary and provide necessary interior latching mechanism.

### Windows

- Repair and maintain existing shutters.

### Arcades

- Continue to preserve existing posts and headers on south side of building.
- Insure proper grade under arcades after completion of archeological investigation.

### Wood Siding

- Repair siding as necessary, maintaining lapped siding on ends and on dormers, spaced slat siding on the sides,

## MANAGEMENT SUMMARY

and solid board walls in the lint and seed rooms.

### Interior

- Replace all missing framing and flooring at second level; replace missing flooring in lint room and on south side of east end of first floor as indicated on plan.
- At the second floor, preserve all existing flooring, adding flooring on top of the historic material if necessary to provide a safe route for visitors.
- Rebuild part of east wall of lint room; repair remainder of walls in lint and seed rooms.
- Rebuild wall on second floor above west wall of lint room or install railing at that location.
- Install railing around perimeter of former seed room floor.
- Reconstruct historic stairs at northeast corner of building; remove stairs at southeast corner of building.

### Electrical System

- Consider exhibiting the building using only natural light.
- If necessary, design concealed lighting to illuminate poorly-lit areas of the building.

### Fire Protection

- Install lightning rods on the building.

- Install a comprehensive system of fire and smoke detectors and a complete sprinkler system.
- Keep ground clear of vegetation or keep grass closely mowed within an area of about twenty feet around the perimeter of the building.

### Handicapped Access

- Design handicapped-accessible route to and around building.
- Install ramp to door I.
- *Design alternate means of interpreting second floor for handicapped visitors.*

### Cotton Gin

- Engage conservators and specialist in early twentieth century gins to guide conservation, re-assembly, and display of existing gin machinery, including the old Eagle gin.
- As part of overall exhibit design for the building, determine how much recreation of missing ductwork, drive shaft belts, and other missing components is necessary for good interpretation of the ginning and pressing operation.

### Cotton Press

- Engage services of conservator specializing in large wooden objects to assess press' condition and guide its treatment.

## Executive Summary

- Determine character and condition of press footing through archaeological investigation.
- Brace press with modern materials if necessary to insure structural stability.
- Avoid any disassembly or replacement of historic materials.
- Do not operate historic press; construct working scale model to demonstrate its operation to visitors.



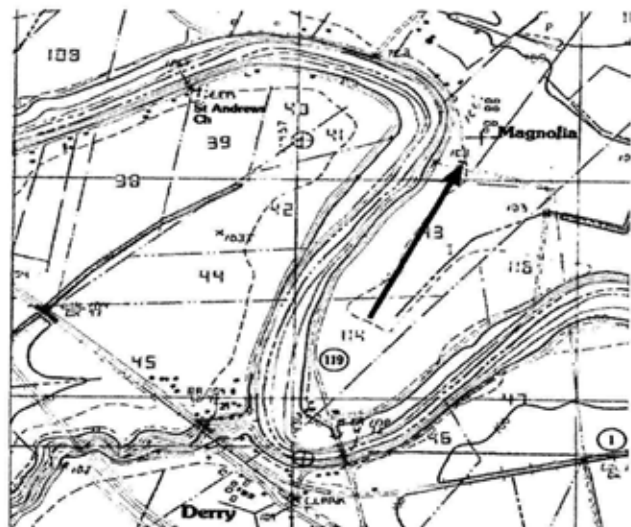
# Administrative Data

## Locational Data

Building Name: Gin Barn

Building Address: Magnolia Plantation, Derry, LA

LCS#: 91561



### Related Studies

- Beha, Ann, and Associates. "Cotton Gin Barn, Magnolia Plantation, Natchitoches, Louisiana, Structural Inspection and Assessment," NPS-SERO, July 1995.
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### Cultural Resource Data

*National Register of Historic Places*: listed 1979

*National Historic Landmark*: listed as contributing structure, January 2001

*Periods of Significance*: 1835- 1960

*Proposed Treatment*: Preservation of existing historic material; rehabilitation to the extent necessary to allow interpretation and visitor

**PART 1**  
**DEVELOPMENTAL**  
**HISTORY**



# Historical Background & Context

The LeComtes were among the first Europeans to settle the southern end of Isle Brevelle, twenty- five miles below Natchitoches, in the 1750s. Over succeeding generations, the LeComtes expanded their holdings in the vicinity of what became Magnolia Plantation and, by the early 1800s, were among the largest land-owners in Natchitoches Parish.

The development of the “cotton gin” (short for “cotton engine”) in the 1790s helped make possible large- scale cotton production, and by 1810 subsistence agriculture and small- scale tobacco production were giving way to cotton production all across the South. By the end of the War of 1812, cotton was the primary cash crop for the LeComtes and most of their neighbors; and as price per pound of export cotton soared to an antebellum high of 33.9 cents in 1817, “cotton fever” gripped the South.<sup>1</sup> Prices fell sharply after the Panic of 1819 and fluctuated between 10 and 21 cents over

1. Ann Patton Malone, “The Magnolia Plantation Overview,” unpublished MSS prepared for NPS, 27 November 1996. p. 37.

the next twenty years, but cotton remained an extremely profitable crop for those with the capital to invest in land and slaves. As Dr. Ann P. Malone points out in her historical overview of Magnolia, Ambrose LeComte I recognized the wealth potential of cotton production and by 1820 had begun a “systematic” campaign to enlarge the family’s old plantation, Shallow Lake, buying from relatives and neighbors a series of tracts to the west and north of the LeComte’s original land grant.<sup>2</sup>

In December 1824, LeComte’s wife conveyed her half of the plantation to their grandson, Ambrose LeComte II, then still a minor of seventeen years. Perhaps their only son, Jean Baptiste LeComte II, was already ill, for he died the following year, leaving young Ambrose II heir to a fortune in land and slaves.

### Magnolia Plantation

Ambrose LeComte II (1807- 1883) married Julia Buard (1809- 1845) in 1827. By that time, he was already assisting his grandfather Ambrose I in a series of “propitious purchases” that enlarged the family’s already substantial colonial holdings. “The time was ripe,” Dr. Malone notes, “for the building of a cotton plantation unparalleled in the region- - Magnolia.”<sup>3</sup>

LeComte’s most- significant purchases of land were “in the volatile and expansive early and mid- 1830s” when present- day Magnolia Plantation took form. In December 1833, Ambrose LeComte (which one is not certain) bought

acreage on the east side of Cane River from the estate of his grandfather’s cousin Barthelemy LaCour. In 1834, he bought additional acreage on both sides of Cane River from the estate of Barthelemy’s brother Jean Baptiste LaCour. Then, in July 1835, LeComte made what Malone calls his “most extraordinary purchase” when he paid Gasparite LaCour \$29,000 for 60 arpents<sup>4</sup> on the west side of Cane River and 900 arpents on the east side, “together with all and singular the houses, outhouses, cotton gin and other buildings thereon.” Although the gin mentioned in that deed is certainly not the present Gin Barn, this last purchase did include the land on which the present Gin Barn is located.<sup>5</sup>

Julia Buard LeComte, Ambrose II’s wife, died in January 1845. The inventory and appraisal of her estate includes mention of a gin house, which was valued at \$2,800. Dr. Bennie C. Keel suggests, probably correctly, that LeComte “may have enlarged and outfitted the gin house with expensive machinery.”<sup>6</sup> If he did, the first gin house at Magnolia may have resembled the one at Westville in Stewart County, Georgia (see Figure 1).

Built about 1840 and one of the best- preserved antebellum gin houses, the Westville gin is typical of the period. The building is two stories high, with the gin stand located on the second

2. Malone, p. 35.  
3. Malone, p. 37.

4. An *arpent* is a French unit of measurement, approximating .40 hectare or .85 acres.  
5. Malone, p. 37.  
6. Dr. Bennie C. Keel, *A Comprehensive Subsurface Investigation at Magnolia Plantation* (Southeast Archeological Center, National Park Service, 1999), p. 24.

floor above a ground-level area that is open on three sides and houses the animal-driven gears that powered the gin. There is no documentation for any of LeComte's antebellum gin houses or gin stands. LeComte probably replaced his gin stands (i.e., machinery) frequently, since most antebellum gins wore out quickly due to the lack of suitable lubricants.<sup>7</sup> At one end of the Westville gin house is the lint room, which runs the full height of the structure and into which the ginned cotton was dumped and stored before being taken to the press to be baled.<sup>8</sup>

By the 1830s, wooden screw presses were being widely used across the South. Throughout the antebellum period, presses and gins were almost always powered by draft animals. Because the sweeps or "buzzard wings" to which the animals were attached had to be located at the top of the screw, the press was typically a free-standing structure that was close but not attached to the gin house. Replaced by more modern presses, including up-pressing steam presses in the late nineteenth century, only four of these wooden screw presses with sweeps at the top have survived, with the one at Westville being the best preserved. None are in their original location.<sup>9</sup>

The separation of ginning and pressing operations was inherently inefficient, particularly during inclement weather; but, by the 1850s,

7. HAER #LA-11 report, p. 3.

8. Karen Gerhardt Britton, *Bale o' Cotton: The Mechanical Art of Cotton Ginning* (Texas A&M University Press, 1992), p. 25.



**Figure 1** Gin House at Westville, c. 1840. The open first floor houses the drive wheel and sweeps for draft animals. Cotton was carried in baskets to the second floor for ginning before falling into the lint room, which is at the left end of the building in this image. (NPS-SERO-CRS, 2001)

other types of presses which allowed for indoor operation were being patented. Karen Britton notes the "Star Press" that was advertised by M. L. Parry of Galveston in 1857, but there were also earlier presses.<sup>10</sup> James L. McComb of Raymond, Mississippi, developed an indoor press which was advertised in the *Southern Cultivator* in July 1850. The ad attracted the attention of Phanor Prud'homme, who wrote McComb that he was "wishing to

9. HABS has documented wooden presses with sweeps at the top in North Carolina (2), South Carolina (1), and Alabama (1). The South Carolina and the Alabama presses were both in ruins when they were documented by HABS and are no longer intact. Buzzard-wing presses also survive at the John Blue Plantation in Laurinburg, NC, and at Westville, GA.

10. Britton, p. 43.



**Figure 2** Westville cotton press, c. 1864. Note sweeps or “buzzard wings” above the roof. (NPS-SERO-CRS, 2001)

introduce on Red River one of your new cotton presses.”<sup>11</sup> By 1854, if not before, one of these presses had apparently been installed at Oakland.<sup>12</sup> Prud’homme’s press was destroyed along with his gin houses in 1864 and none of McComb’s presses are known to survive today.

The existing press at Magnolia and a similar one that is now located at Texas A&M University in Lubbock represent another type of indoor cotton press. The origin of the design of these two presses has not been documented, but it may also have been developed in the 1850s. Both of these presses have wooden

11. Letter from Phanor Prud’homme to J. McComb, 7 October 1850, Series 3.1.1, folder 143, Prud’homme Collection #613, Southern Historical Collection, University of North Carolina (UNC), Chapel Hill, NC.
12. Letter from McComb to Phanor Prud’homme, 10 June 1854, Series 3.1.1, folder 145, Prud’homme Collection, UNC.



**Figure 3** View of interior of Westville press building. Antebellum presses did not always include the surrounding shed, which would have facilitated operation of the press in inclement weather as well as protecting the screw from the elements. (NPS-SERO-CRS, 2001)

screws and, like the Star and McComb presses, were operated without the top-mounted sweeps or “buzzard wings” that were so common throughout the antebellum period. Instead of turning the screw in a stationary press box, the box itself was turned around the screw, which remained fixed in place. As Britton describes the operation of the Lubbock press, which was originally built around 1874 on a farm near Tyler in east Texas, “a cross member was attached to the top of the screw and it . . . worked up and down in two vertical guides to keep the screw properly aligned as the two mules turned the entire press assembly around the screw. The press was down-packing, and the bale was finished out at ground level.”<sup>13</sup> The Magnolia press operated in a sim-

13. Britton, p. 49.

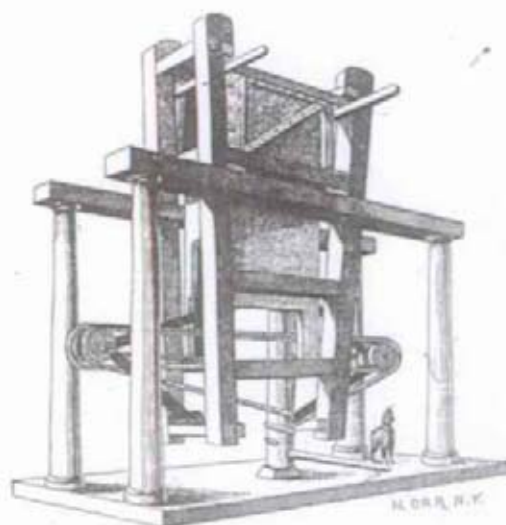


ilar way, although it was powered by horses according to one report (see Appendix B for HAER report on press operation).<sup>14</sup>

With the gin and press combined into one building, the ginning operation could go on in any weather, a great step forward for the typical plantation gin since so much of that work had to go on in the fall and winter. The Magnolia and Lubbock presses are the only two of this type known to exist today, although there are elements of what appear to have been one or perhaps two earlier presses, perhaps of the same type, incorporated into the east end of the existing gin barn at Magnolia. Given the obvious advantages that these indoor presses offered and the fact that, unlike the McComb and Star presses, they could be built as easily as the old "buzzard-wing" presses, it is difficult to believe that there were not others besides these in the twenty or thirty years before screw presses were rendered obsolete by steam-powered hydraulic presses in the last quarter of the nineteenth century.

In February 1858, G. S. Walmsley surveyed Magnolia for Ambrose LeComte II and produced a detailed plat of the property showing the location of most, if not all, of the antebellum structures, including a "Gin." Although Walmsley platted boundary lines correctly, Keel noted in the report of his archaeological

14. "Farming Today, Farming of the '90s," undated newspaper article, probably 1941, in "1939-1949 Scrapbook," private Hertzog Collection, Magnolia Plantation. In this article, reference is made to "the old time cotton gin horse press" at Magnolia.



MR. McCOMB'S NEW COTTON PRESS.—(Fig. 28.)

**Figure 4** Phanor Prud'homme apparently installed one of these indoor presses at Oakland in the early 1850s. (Illustration from *Southern Cultivator*, July 1850)

investigation (1999) that "internal features were plotted with much less precision."<sup>15</sup> Building dimensions, features, and spatial relationships, while useful for interpretation, are not always accurately depicted. Nevertheless, the "Gin" depicted on this plat is clearly located in the approximate vicinity of the present building. If the image is accurate, the antebellum gin was a two-story, wood-framed structure with end-gabled roof and an open shed off its eastern end. Walmsley did not depict an outdoor cotton press, perhaps because he considered it a secondary structure or, more likely, because there was none. Since he went to the trouble of depicting corn cribs, pigeon houses, and a smoke house, it could be concluded that LeComte had already installed

15. Keel, p. 28.



**Figure 5** Part of plat of Magnolia, about 1858, depicting "Gin" and other buildings on the plantation. Arrow locates gin. (Hertzog Family Collection, Magnolia Plantation)

one of the newer, indoor, stationary- screw presses by 1858.

Unfortunately, no other documentary evidence for the antebellum cotton gin and presses at Magnolia has been located except for a notation in Magnolia records that "Little Ned" died September 29, 1856, "burnt in the press."<sup>16</sup> It is an odd reference that has been interpreted to mean that LeComte's gin and presses were being powered by steam.<sup>17</sup> If that were so, it is still not clear how one might be "burnt" to death in a press, since any boiler and engine would have been located outside the building, with power

16. "List of Slaves at Magnolia, 1852, but estimated in 1845," Series 3.1.2, folder 164, Prud'homme Papers, UNC.

17. Malone, p. 49.

transferred by belts to the gin and press inside. In addition, the first steam- powered, up- packing press, which would ultimately replace the old screw presses, did not appear until the 1870s.<sup>18</sup> Cotton lint could be highly combustible (making fire the gin owner's greatest worry), and it is possible that the death of Little Ned had nothing to do with steam- powered engines at all. Nevertheless, some plantation owners, including Phanor Prud'homme at Oakland, are known to have installed steam- powered gins in the 1850s.<sup>19</sup> While mules, horses, or oxen remained the most common source of power until the last quarter of the nineteenth century, it is possible that Ambrose LeComte also installed a steam- powered gin in the 1850s.<sup>20</sup>

### LeComtes and Hertzogs

In February 1846, a little over a year after his first wife's death, Ambrose LeComte II married Lise Victorie Désirée Sompayrac (1816- 1898). Over the next ten years, he gradually withdrew from active management of Magnolia, preferring instead to focus on breeding and racing his thoroughbred horses, for which he was winning prizes in Europe as early as the mid- 1840s.<sup>21</sup> By 1850, the LeComtes were not living

18. Britton, p. 54.

19. Letter to Phanor Prud'homme from unknown party who was training one of Prud'homme's slaves to operate a steam engine, Series 3.1.1, folder 145, Prud'homme Collection, UNC. Also see Prud'homme's journal, 27 February 1860 and other dates through September 1860 which document his construction of a steam-powered gin, Series 3.1.5, folder 273, Prud'homme Collection, UNC.

20. Britton, p. 25.

at Magnolia but at their town house in Natchitoches. In the 1850 Federal Census, the only residents at Magnolia were Suzette Buard, the widow of Julia Buard LeComte's brother Louis, who had been a close friend and business partner of Ambrose LeComte II; Suzette's six children; and her younger brother Matthew Hertzog (1829-1903), son of Jean François Hertzog (1782-1842) and Marianne Désirée Prud'homme.

Although Dr. Malone's study of Magnolia accepts family lore placing construction of their first Big House in the 1830s, recent findings have confirmed that Ambrose LeComte completed a new house in the spring of 1851.<sup>22</sup> Perhaps the house was built for his daughter Ursula Atala (1830-1897) since, after her marriage to Matthew Hertzog in January 1852, they occupied the house. Sometime after the Hertzog's marriage, LeComte executed a partnership agreement that gave the Hertzogs a 40-percent interest in the LeComte plantations along Cane River. For the rest of their lives, the Hertzogs made Magnolia their home and were in charge of day-to-day decision-making and operations. Under the Hertzogs in the 1850s, Magnolia Plantation experienced its heyday.<sup>23</sup> With cotton prices soaring, the prosperous years leading up to the Civil War were almost unprecedented for many Southern cotton planters; certainly they were for the LeComte/Hertzog partnership. With over two hundred slaves in the 1850s (235 in 1860) on their three

plantations (Shallow Lake, Vienna, and Magnolia), they were able to capitalize fully on the dramatic rise of "King Cotton." From as few as 103 bales of cotton grown in the flood year of 1847, production at Magnolia rose to 479 in 1852, which LeComte noted in his journal as an "excellent year." Prices and production remained strong throughout the 1850s. In 1860, on the eve of the Civil War, LeComte claimed production of over 1,100 bales of ginned cotton. As Dr. Malone notes, LeComte and Hertzog were "fully into the one-crop economy," with LeComte being both the parish's largest slaveholder and its largest cotton producer.<sup>24</sup>

### Civil War and Reconstruction

After the firing on Ft. Sumter in April 1861, western and northern buyers quickly withdrew from the cotton market, although New Orleans factors continued to buy for a while longer. It was a banner year for cotton production, but by year's end one Louisiana planter lamented that "all commercial interests are entirely destroyed" by the Federal blockade of Southern ports. "Cotton and sugar cannot be sold."<sup>25</sup>

A few of the more optimistic planters continued to plant cotton in 1862 and some may even have managed to export their crop overland to the Mexican port at Matagorda until that avenue, too, was closed by the Union blockade. The Federal occupation of New Orleans in April 1862 and of Baton Rouge a short time later forced removal of the state's capital to Alexan-

21. Malone, p. 56; Arthur Babb, "My Sketch-book," p. 207, Magnolia Coll., NSU.

22. Keel, pp. 84-88.

23. Malone, pp. 55-56.

24. Malone, pp. 59-60.

25. Malone, p. 68.

dria and insured that cotton would be a worthless commodity in Louisiana for the duration of the war. As a result, the Hertzogs and most of the rest of the planters along Cane River had little incentive to continue planting cotton and, instead, focused their efforts on growing corn and other products that could help supply the Confederate armies. In May 1863, Federal troops occupied Alexandria, forcing state officials to flee again, this time to Shreveport. By the spring of 1864, forty-five thousand Federal troops were massed at Alexandria, awaiting spring rains that would make the Red River navigable and allow conquest of the upper reaches of the valley and confiscation of its rich store of cotton.

All over upper Louisiana, massive amounts of cotton had built up in warehouses as the Federal blockade shut down the cotton export market. Over twelve thousand bales were reported in the Natchitoches area alone; and, in order to prevent a potentially-valuable commodity from falling into enemy hands, Confederate army officers executed a two-year-old proclamation from the Governor that ordered "the destruction of all cotton within the limits of Louisiana that is in danger of falling into the hands of the enemy." By the time Federal forces moved out of Alexandria in late March, the banks of Cane River were ablaze with burning cotton. As the Federal troops ascended the valley in early April, cotton continued to burn; and one retreating Confederate soldier remembered that "from the 24-Mile Ferry [below Cloutierville] up to the Town of Natchitoches, it looked like everything was on

fire, every plantation had fire and smoke. Cotton was burning. Cotton gins and gin houses were burning. And it seemed to be a retreat of 24 miles through the fire and smoke of burning cotton and cotton houses and even when we arrived at Natchitoches, there was cotton burning on the opposite bank of the river."<sup>26</sup>

Although many residents remembered wanton destruction by Federal troops, the goal remained destruction of cotton itself, and not necessarily the means of its production. Federal commanders made this clear in orders issued in late March:

In relation to cotton gins where there are but small lots of cotton and not enough time to remove this, the cotton will not be fired, but in all such cases every effort should be made to roll the cotton out. But where there is cotton in any quantity in the gin-houses, and no opportunity to remove it, it must be burned. . . . You will also refrain from burning where the gin houses connect with dwellings or other expensive range of buildings.<sup>27</sup>

The history of one Maine regiment records their march up Cane River in 1864 and contains the only sure reference to Magnolia that has been located in Civil War records. "The wind blew a gale down river" on Thursday, March

26. Sharon Sholars Brown, editor, "Papers of the Fifth Grand Reunion of the Descendants of the Founders of Natchitoches" (Conference held 27-28 July 1984, Northwestern State University), p. 32, Sp. Coll., NSU.

27. Testimony of F. L. Grappe in Charles C. Bertrand v. United States, Case #345, French and American Claims commission, microfilm, p. 33, NSU.

31, as the regiment crossed Cane River and began their march toward Natchitoches. There was some plundering as the troops passed through Cloutierville before camping for the night near Melrose, which was then the plantation of Ambrose LeComte's sister Laura and his brother-in-law Bernard Théophile Henry Hertzog. Along the way, according to the regimental history, "All the cotton houses [which may not necessarily have been gin houses] had been burnt; at LeComte plantation, the fire which was five days old, was still blazing."<sup>28</sup>

Since the troops were marching up the east bank of the Cane River, it is likely that this reference is to Magnolia and not to LeComte's Shallow Lake plantation. However, if it had been burning for five days, the fire must have been set days before the Federal march began from Alexandria, and LeComte and Hertzog may have had the opportunity to save their buildings if not the cotton itself. It is possible that the Maine historian even mistook mounds of burning cotton bales for burning structures.

In late April, battles at Mansfield and Pleasant Hill, northwest of Natchitoches, resulted in "a frantic retreat . . . a relentless 30-hour-long forced march" that took the Federal troops back down Cane River. On this march, there was widespread looting and burning of civilian property, including the entire town of Grand Ecore, above Natchitoches. Near Campiti above Natchitoches, Ambrose LeComte's

cousin Tranquillian LeComte saw his entire plantation burned to the ground.<sup>29</sup> One Confederate general may have exaggerated when he remembered that "the destruction of this country by the enemy exceeds anything in history. For many miles every dwelling house, every Negro cabin, every cotton gin, every corn crib, and even chicken houses have been burned to the ground."<sup>30</sup> Nevertheless, the destruction was widespread and the fate of the LeComte gin can only be guessed.

The Maine regiment left Natchitoches at 1:30 a.m., April 22, with their way "lighted by the fires of burning cotton." Retracing the route of their march three weeks earlier, the regiment followed along the west bank of Cane River before stopping around 11 a. m. at an unidentified plantation "whose mansion house had been burned months before." Resuming their march around three o'clock in the afternoon, they did not reach their camp two miles below Cloutierville until nearly midnight, having marched almost 40 miles that day.<sup>31</sup>

Given the above accounts, it is not certain when the Hertzog's big house at Magnolia was burned, since family tradition only states that it occurred during the Red River campaign when Federal troops are thought to have camped near Magnolia. One family legend suggests that the firing of the big house was the result of Hertzog's overseer gambling with Federal

28. John Gould, *History of the First-Tenth-Twenty-ninth Maine regiment in service of the United States from May 3, 1861 to June 21, 1866* (Portland, ME: S. Berry, 1871), p. 409.

29. Testimony of Henry Ruty in *Henry Ruty v. United States*, Case #369, French and American Claims commission, microfilm, NSU.

30. Brown, p. 34.

31. Gould, p. 433.

troops, an encounter that could certainly have occurred as troops rested in the vicinity on April 22.<sup>32</sup> However it happened, the Hertzog's house was a complete ruin by the time the Federal troops decamped and other structures may have been destroyed as well.<sup>33</sup> Although there was clearly widespread destruction up and down the valley in the spring of 1864, there is still no certain record of the plantation's gin being destroyed at that time. The war dragged on for another year as the residents of Cane River coped with the desolation around them. "Discouraged and depressed," according to Dr. Malone, the Hertzogs moved into the old slave hospital, where they would live for more than thirty years. Not until the 1890s were they finally able to rebuild on the burnt-out foundations of their antebellum house.

### Hertzog's Magnolia

Ambrose LeComte retained his controlling interest in Magnolia until his death, but Malone credits Matthew Hertzog with rebuilding the ruined plantation. Cotton prices were high immediately after the war; and, although the turmoil of free labor slowed the return to full production, an operational gin and press would have been a high priority for Hertzog, as it was for Phanor Prud'homme, who rebuilt his gin and press in 1866.<sup>34</sup> With the *ad hoc* solution of tenancy and sharecropping, production rose rapidly after 1868, while increased international

competition and other factors kept cotton prices from recovering but a fraction of their pre-war level. In 1870, Hertzog and LeComte produced only 376 bales of ginned cotton, a sharp decline from the bumper crops of the late 1850s.

The Panic of 1873 precipitated a nation-wide economic depression, and by the time Reconstruction ended in Louisiana in 1876, the economy was only just beginning to improve. Even then, the South's debt-ridden farmers continued to suffer over the next twenty years, a period many remembered as "the Long Depression." Unfortunately, the amount of cotton produced at Magnolia in the 1880s and 1890s has not been documented, since it appears that Magnolia and the Shallow Lake plantation escaped enumeration in the 1880 agricultural census schedules and the 1890 schedules do not exist. Nevertheless, Malone concludes that cotton and corn remained the major crops at both plantations throughout the nineteenth century.<sup>35</sup>

Ambrose LeComte II died in March 1883 at his home on Front Street in Natchitoches, and a short time later his executors inventoried his estate. In spite of enormous financial setbacks from the loss of his slaves and devaluation of property after the Civil War, LeComte still held title to his two Cane River plantations, Shallow Lake and Magnolia (Vienna had been sold). Shallow Lake, which the LeComtes are thought

32. Interview with Betty Hertzog, 9 May 2001.

33. According to Keel, items recovered from a burned structure situated under the present store suggest that the plantation "commissary" was burned during the Civil War.

34. Plantation Journal, Series 3.1.5, folder 271, Prud'homme Coll., UNC, documents Prud'hommes reconstruction of his gin and press.

35. Malone, pp. 82-83.

to have first developed over a hundred years earlier, consisted of 1,960 acres valued at \$12,000; Magnolia included 2,261 acres and was valued at \$15,000. In addition, LeComte owned a significant amount of property in Nat- chitoches, including his town house, commercial real estate, and a 50- acre horse- racing track, as well as several thousand acres of "wild" lands in up- state Louisiana.

The 1883 inventory of Magnolia also noted an "Eclipse" cotton gin stand and condenser powered by a "Chapley" steam engine. Value of the ginning equipment was put at \$1,025.<sup>36</sup> This reference represents the first sure historical evidence for the use of a steam- powered gin at Magnolia. The old wood- screw cotton press remained in operation even after the more modern "system gin" was installed in the 1890s. In 1941, Miles Delacorda, whose father had been one of Matthew Hertzog's overseers, recalled "Hay Pressing Time" and continued use of the old wood- screw cotton press at the west end of the Magnolia gin barn. "They made hay while the sun shone and harvested on the rainy days," Delacorda recalled, "using the old time cotton gin horse press, making the bales of hay like bales of cotton."<sup>37</sup>

There was a variety of improvements in the technology of cotton ginning over the years, but in the 1880s, Robert S. Munger revolutionized the entire operation. According to Britton, Munger was "frustrated by the long lines of

wagons, impatient farmers, and an inability to fill available rail cars" because the old process could not keep pace with the tremendous increase in cotton production that occurred after the Civil War. So, between 1883 and 1885, Munger "completely reorganized the hundred- year- old tradition of plantation ginning" with the development of his "system ginning" whose concept and technology are still in use today. In essence, Munger devised a system that automated the ginning process into one streamlined operation. By using fans to create a pneumatic system to move cotton from the farmer's wagon all the way through to the finished bale, Munger eliminated much of the hand labor, and for the first time commercial gin operations became really profitable.<sup>38</sup>

In 1887, the executors of Ambrose LeComte's estate sold Shallow Lake plantation to Ambrose's daughter Eliza LeComte Prud'homme and formally passed title to Magnolia plantation to Matthew and Atala LeComte Hertzog. Cotton prices plunged to 5- 7 cents per pound during the economic depression that followed the Panic of 1893, but as the economy recovered after 1895, the Hertzogs were finally able to rebuild the Big House that had been destroyed in 1864. Late in 1896 the Hertzogs finished the house and were able to move from the old slave hospital where they had lived for over thirty years. Living with them was their only son, Ambrose J. Hertzog (1857- 1921), who was managing the plantation, along with Ambrose's wife, Sally Hunter, and their four children. Atala LeComte Hertzog died in October 1897,

38. Britton, pp. 58-59.

36. Malone, p. 86.

37. "Farming Today, Farming of the '90s," undated newspaper article, probably 1941, in "1939-1949 Scrapbook," private Hertzog Collection, Magnolia Plantation.

less than a year after they moved into the new house, leaving Matthew Hertzog a widower for the last six years of his life. He died in May 1903 at the age of 74.

Ambrose Hertzog inherited most of Magnolia from his father, but his sister Fannie Hertzog Chopin inherited the gin and quarters. In order to keep the working core of the plantation intact, she sold that property back to her brother in 1903. A short time later, she and her husband, Lamy Chopin, acquired another plantation below Cloutierville.<sup>39</sup>

Within a year of Matthew Hertzog's death, reports of losses from boll weevil infestations were reported in Louisiana. First observed in the Rio Grande valley around 1893, the weevil steadily expanded its territory north and east until even the cotton-growing regions of Georgia and the Carolinas were being devastated by the early 1920s. In the years leading up to World War I, the situation grew increasingly desperate and, as Dr. Malone points out, many Southern farmers were brought to "the brink of ruin." The outbreak of war in Europe in 1914 brought only a brief respite in terms of higher prices. Cotton briefly rose as high as 43 cents a pound in 1919 before crashing to a fraction of that in 1920, sending the South's entire cotton-based, agricultural economy into collapse.<sup>40</sup> In addition, as the cotton economy was being destroyed by the boll weevil and foreign competition, large numbers of black sharecroppers and tenant farmers abandoned the plantations for better jobs and less discrimination in the

North, especially during and shortly after World War I. Often called the "Detroit Exodus" for the large numbers who migrated to that city's booming automobile economy, the migration left the South strewn with abandoned and derelict tenant farms and plantations and left landowners and businessmen hurting for labor.<sup>41</sup>

While the boll weevil did not bring an end to cotton farming in the South, it did make the business far more difficult and only slowly did farmers learn to deal with the pest. After Ambrose J. Hertzog died in 1921, it was with some difficulty that his son Matthew II was able to continue operating Magnolia through the 1920s, only to see the bottom drop out of the national economy after 1929, when cotton fell to nine cents a pound. With huge crops in 1930 and 1931, the price of cotton dropped to a nickel in 1932, far below the cost of production. Calls for voluntary reduction in acreage went largely unheeded until 1933 when, as part of FDR's "New Deal," farmers were forced to plow under a quarter of their crops or face financial penalties. In doing so, "they were, in fact, plowing under an old way of life." Although the New Deal helped stabilize cotton prices, not until World War II did increased demand bring prices back up to a profitable level.<sup>42</sup>

In January 1939, one of the tornadoes that periodically plague the Red River valley devastated Magnolia. Although the tornado missed the Big House and its oak-shaded grounds,

39. Malone, p. 82.

40. Malone, p. 74.

41. Malone, p. 88.

42. Malone, pp. 89-90.





**Figure 6** View of destroyed engine house at Gin Barn after 1939 tornado. The barn is partially visible at right. (Hertzog Family Collection, Magnolia Plantation)

several of the buildings to the south were badly damaged. The engine house at the east end of the gin barn was destroyed, and there was significant damage to the gin barn itself. While the main structure survived intact, the lean-to sheds along the sides were ripped from the building, and there was probably damage to the main roof as well. By then, Hertzog's ginning equipment was well past its prime; and, with larger, more-modern, community gins available in the parish, he followed the lead of many

of his contemporaries in abandoning his plantation ginning operation.

The engine house was so badly damaged that it was torn down, leaving only the brick foundation for the steam engine to mark its location. The gin barn was not beyond repair, however. The arcades on either side of the building were rebuilt, the roof repaired, and a wooden floor installed where there had been none in the press or west end of the building and along the north side of the east end. The old cotton press and ginning equipment were left in place; but for the next forty years, the barn was used only for storage of hay.

Historical Background & Context

# Chronology of Development & Use

A large amount of confusion has attended recent interpretation of the Gin Barn, with estimated dates of construction ranging from the 1830s to the 1890s and a number of theories floated about its historic evolution. The present study is an attempt to define and interpret the building using documentation from archival research and from family tradition as well as data from physical investigation of the building itself by a number of parties. Through this process, a clear sequence of changes can be identified in the building, although major repairs in 1939, 1982, and 1996 make it difficult at this late date in the building's history to describe with complete certainty the building's earliest appearance and use. In addition, precise dating of the construction and historical evolution of vernacular buildings, particularly agricultural buildings like the gin barn, is always difficult. Archival investigation usually produces little definitive information, and traditional building details change so slowly (and are so easily misread) that they, too, offer only scant clues to aid in dating the various phases of the building's evolution. As a result, the sequence of changes to the Gin Barn generally can be identified but individual changes themselves cannot always be definitively dated and interpreted.

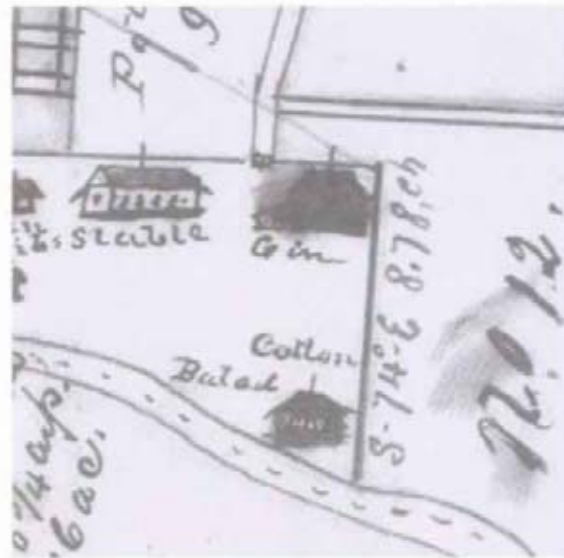
## Origins

The 1996 report by the Historic American Engineering Record (HAER) noted that the barn "appears to have been constructed at one time, rather than added to over a period of years or decades." Further historical research and building investigation have found nothing to alter that conclusion. This is not to say the building has not been altered-- there have been many alterations, especially to the arrangement and connection of the interior spaces-- but the uniformity of the main framing members, the way they are joined, and other features of the present building "are consistent with same-date construction." All evidence indicates that the main frame of the building was originally built in more or less its present size and form.<sup>43</sup>

A newspaper article that Malone discovered in one of the Hertzog scrapbooks has led some researchers to the mistaken conclusion that the Gin Barn was constructed long after the Civil War. Shortly before World War II, the *Natchitoches Times* printed a brief memoir by a son of a Hertzog overseer named Delacorte. Entitled "Farming Today vs. Farming of the 90s," the undated article (see Appendix A) states that Matthew Hertzog "built the new gin with seed house on the river bank and delivery pipe from the gin house to the seed house, a distance of one hundred yards or more," implying in the article that this construction occurred in the 1890s.<sup>44</sup> The seed house, which

43. HAER #LA-11, p. 5.

44. "Farming Today, Farming of the 90s."



**Figure 7** Detail from 1858 plat of Magnolia Plantation depicting "Gin" near or on site of present Gin Barn. The survey line to the right of center approximates the present southern boundary of NPS property at Magnolia.

stood west of the barn, was torn down in the 1970s; but patent dates and other information supplied by the Continental Gin Company confirm that the present gin stands and some other surviving equipment, which were all part of a Munger-type "system gin," date to the 1890s or very early 1900s.

However, the use of hewn sills, girders, and posts; mortise- and- tenon joinery; and pegged rafter connections virtually eliminates the possibility that the Gin Barn was built after Reconstruction. By the last quarter of the nineteenth century, sawmill technology had so improved that even large timbers could be milled, eliminating the laborious hewing of wood that was previously necessary to produce large- dimen-

sioned lumber. Furthermore, there was a significant evolution in the technology of wood-framed structures in the nineteenth century as traditional timber framing underwent a steady reduction in the size of individual members. Standardization of lumber dimensions facilitated the development of modern "balloon framing," especially after the Civil War; and, by the 1890s, plans for balloon-framed gin houses were widely available.<sup>45</sup> Almost certainly any gin house that Hertzog might have built in the 1890s would have been balloon framed.

In addition, alterations to the existing building show conclusively that the present ginning equipment, which is the same equipment described in the newspaper article, was installed long after construction of the building itself. There is evidence for at least two earlier gins in the building, both of which pre-dated the Mungertype system gins of the late 1880s and 1890s. It must be concluded that the overseer's son was simply mistaken in believing Hertzog's gin barn and the "system gin" of the 1890s were contemporaneous.

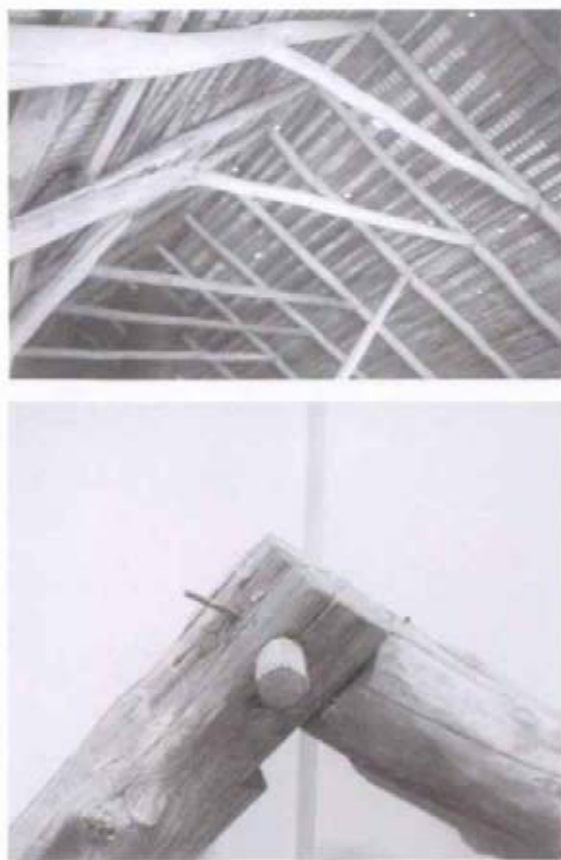
Other researchers have suggested that the Gin Barn dates to the 1830s. However, the use of circular-sawn lumber precludes the possibility that the existing Gin Barn is the early gin house that was on the property in 1835, since circular-sawn joists and studs were not generally used until the 1850s. It is possible that the basic timber-framed structure, including the log floor

45. The balloon-framed gin barns at Agrirama in Tifton, Georgia, and at Olde Alabama Town in Montgomery were both modeled after authentic gin barn plans from the 1890s.

joists of the center room, represents the original building and that the second floors were added later (there is no evidence for an earlier floor system). However, if this were the case, the building would make little sense as a gin barn. The large size of the building and the configuration of its plan also do not fit the pattern for most early gin barns (e.g., the Westville gin house, Figures 1 & 2, above). In addition, the few cut nails in the building cannot be dated earlier than the 1840s, leading to the conclusion that it is unlikely that the Gin Barn was built before the 1850s.

It is possible that the archaeological feature that Keel identified southeast of the present barn represents the remains of the gin house that was on the property when Ambrose LeComte purchased the plantation in 1835.<sup>46</sup> It is also possible that the present Gin Barn was built on the site of the older building, although there has been no archaeological investigation within the footprint of the present building to confirm or deny that possibility. The existing Gin Barn may well be the same structure depicted on the 1858 plat. Although very little is known about LeComte's antebellum gin house (or houses) other than the information contained in this plat, there is nothing in the existing Gin Barn that is inconsistent with a construction date in the 1850s. The combination of hewn sills, posts and plates along with circular-sawn joists and studs is often found in

46. Keel, p. 60-61, refers to this feature as "Structure Group B."



**Figure 8** Top, view of original roof prior to its removal in 1995; bottom, detail of salvaged rafters showing lapped and pegged ridge connection. (Upper image, Architectural Division, NPS-SERO, 1994; lower image, NPS-SERO-CRS, 2001)

buildings from the 1850s and later. Perhaps the most compelling evidence for an antebellum construction date was found in the pole-framed roof. Parts of two original pole rafters were preserved, complete with ridge connection, when the roof structure was replaced in 1995.<sup>47</sup> The lapped and pegged connection of these rafters is typical of the antebellum period but would be unusual in the postbellum period. The Magnolia store, for example, is thought to

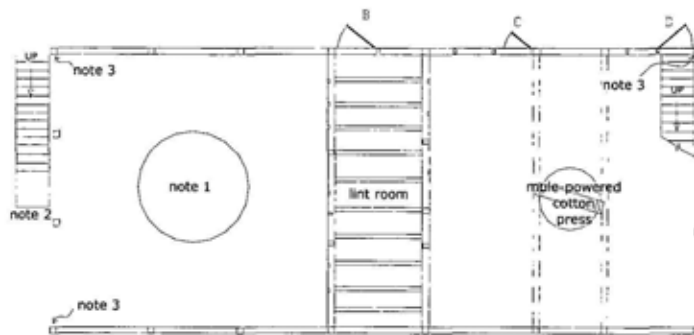
have been constructed in the early 1870s and used nailed rather than pegged rafter connections.

In addition, research has failed to locate convincing evidence that the Magnolia gin was destroyed during the Civil War, although circumstances suggest that is possible.<sup>48</sup> Although no precise construction date for the gin barn can be established at this time, existing information strongly suggests that the building was built shortly before the Civil War or, perhaps, immediately after the war. While many conclusions must remain tentative, a general outline of the building's development and use since that time is presented below. Physical evidence suggests that the building was substantially altered on at least three occasions, most recently when it was converted to a hay barn in 1939. While the sequence of modifications to the building is clear, dates for earlier configurations are approximate and should not be considered absolute.

### Original Barn, c. 1860

While the hewn frame of the building appears to have been built at one time, it is not abso-

47. The character of the connection and the presence of nineteenth-century cut nails in the surviving rafter ends prove conclusively that at least part of the roof removed in 1995 was original and not, as some have assumed, a modern reconstruction of the original roof.
48. There is no family tradition that the gin barn was burned in 1864 nor is there any certain mention of it in the French-American claims or the Maine regimental history.



**Figure 9** Conjectured floor plan of original barn, c. 1860. (NPS-SERO-CRS, 2001)

lutely certain that the second floor was part of the original building, given the unusual, if not unique, nature of the connection of the second floor beams. These connections consist of pegged splines instead of the more typical mortise- and- tenon joinery and are found at all of the second floor beam connections as well as at some but not all of the connections of posts and studs to the sill, principally on the southwest side of the building. However, if the second floor were not part of the original building, it is difficult to see how the building could have accommodated a gin or a press. In addition, it is significant that these splined connections are also found at other connections, suggesting that they are the result of later repairs to earlier monolithic connections. Were it not for the 1858 plat, which clearly identifies a gin in the vicinity of the present building, it might be concluded that the present building was built for another purpose and then later modified to accommodate a gin. That does not seem likely.

With its second floor in place, the building could have easily accommodated a gin, a lint

room, and an indoor press. Sills were not present originally on the east and west ends of the building, no doubt to allow passage of draft animals; only the center room, which must have been used as a "lint room," was floored. A rectangular floor opening above the east side of the lint room appears to have been a drop for the cotton as it was ginned at the second floor level, similar to the arrangement of the gin at Westville.

Framing details for the missing stairs that rose from Door D indicate they were part of the original construction of the building, giving access to the second floor loading area for the original press which appears to have been located at the east end of the building where the gin machinery is now located. Framing for Door B, which opens on the north side of the lint room, and for Door C, which opened on the north side of the present gin room but was closed when the existing ginning equipment was installed, indicate that these were also original doors. All three of these doors have similar wrought- iron hardware, hand- planed boards, and cross- braces with chamfered edges. There is no conclusive evidence that any of the doors on the southwest side of the build-

#### Note

1. The height of the framing for the second floor at this end of the building suggests that a mule-powered, horizontal drive gear could have been located in this area.
2. Possible location of exterior stairs. Although no evidence for these stairs has been located, the existing stairs to the second floor do not appear to be original and exterior stairs were typical in nineteenth century gin houses.
3. The absence of mortised connections between present end sills and corner posts indicates that both ends of the barn were originally open.

ing are original openings. Physical evidence suggests that the original gin was a mule- or horse- powered gin. The lower second floor level at the west end of the building could easily have been constructed to accommodate the sort of mule- driven gears found at the Westville gin and that were typical for the period. Since the cistern is located at the east end of the building, it seems unlikely that the first gin, if it were located at the west end, was steam powered. Physical evidence (except for possible archaeological evidence, which has not been investigated) for this sort of gin appears to have been obliterated when the present wooden screw press was installed at the west end of the building; but contemporaneous with this first gin must have been an earlier wooden screw press located at the east end of the building. The surviving central beams at the east end of the building appear to have supported the same sort of indoor press that remains at the west end of the building, but the beams at the east end are set higher in the building and spaced closer together, indicating the use of a smaller press box there. In addition, another salvaged beam is present in the added floor framing at the east end of the building; its empty mortise suggests that it was part of a third cotton- press frame, although it may not have been part of the present building.

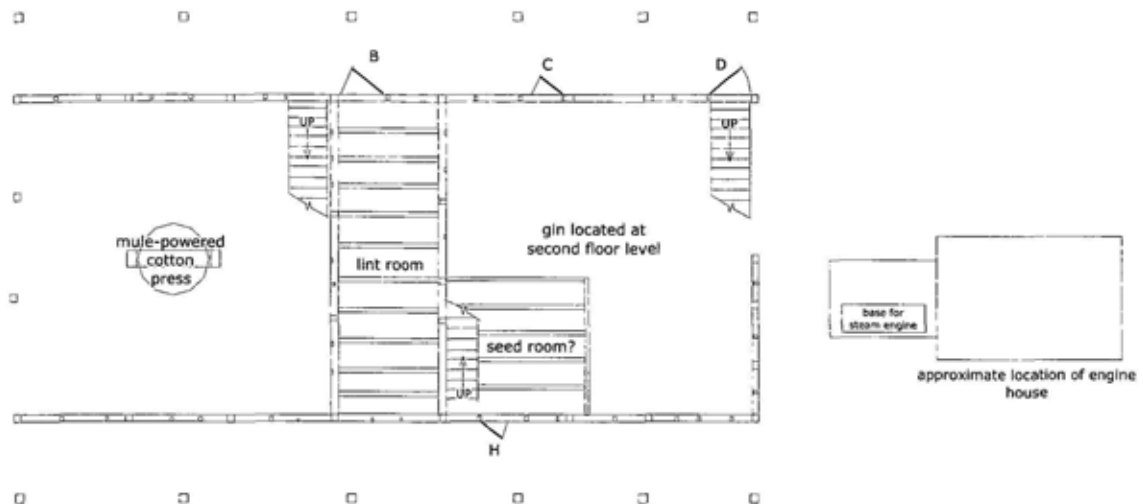
### **Steam Power, c. 1870**

Exactly when Hertzog installed the first steam engine at his gin remains undocumented and a matter of debate. It was certainly in place by 1883 when Ambrose LeComte's succession in-

ventoried a "Chapley" steam engine at Magnolia and it may have been installed ten or fifteen years earlier. The brick are larger and the mortar harder in the existing brick engine base off the east end of the barn than in the cistern, which was presumably built to provide water for the first steam engine. It is likely that the Chapley engine was replaced by the steam engine that was removed in 1939 and which had been acquired to provide additional power to the gins and hydraulic press that Hertzog installed at the turn of the century.

No documentation has emerged that would allow precise dating of the present wood screw press. However, its place in the evolutionary history of the building is established through physical evidence and the limited historical evidence that has come to light. The press, with its rotating box, is a type for which there is no documentary evidence, although similar indoor presses do not appear to have been built prior to the 1850s. The only other surviving press of this type - - the Goodman press now at Lubbock, Texas - - was constructed near Tyler, Texas, in 1874. The high quality of craftsmanship in the Magnolia press, and the fact that it appears to have been the second press in the building, suggests that it may have been constructed around that time as well. Hertzog's first steam- powered gin would not have included a steam- powered press, and it is reasonable to conclude that the present wooden screw press was installed along with the first steam- powered gin, which certainly





**Figure 10** Conjectured floor plan of Gin Barn after installation of first steam-powered equipment, c. 1870. (NPS-SERO-CRS, 2001)

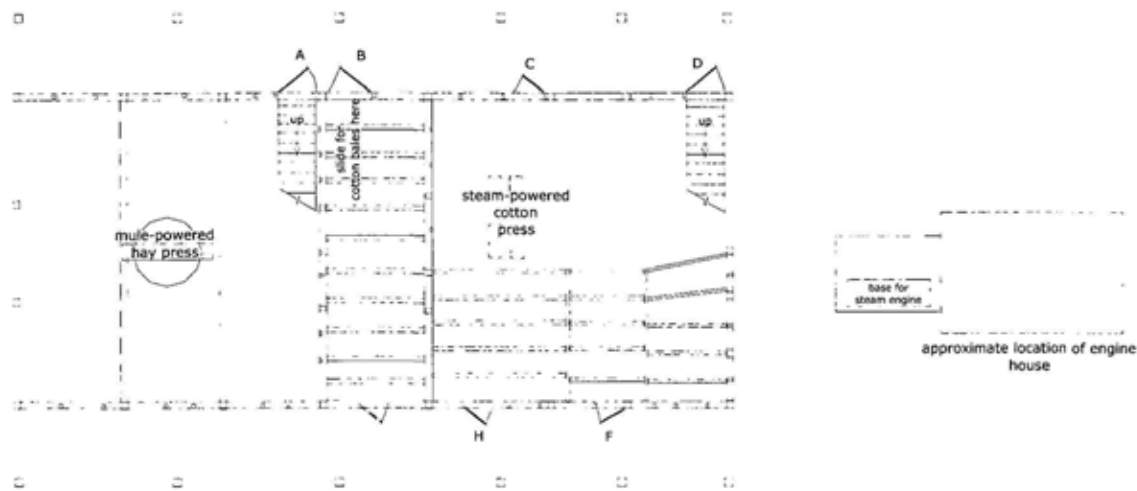
occurred before 1883 and probably occurred ten or fifteen years earlier. The lower second floor level at the west end of the building probably did not provide enough headroom for the new steam-powered ginning equipment, which was therefore installed at the east end of the building. A new cotton press was then installed at the west end of the building, where the first gin had been located, with new interior stairs at Door A replacing what must have been exterior stairs to the second floor at the west end of the building.

The Eclipse gin and condenser noted in LeComte's succession inventory in 1883 were probably powered by the Chapley steam engine that was noted in the same inventory. That engine could have been installed in the shed off the east end of the building depicted in the Walmsley plat, similar to the arrangement of

the gin at Agrirama inifton, Georgia. The Eagle gin that remains in the building has been dated to around 1890 by Tommy Brown of the Continental Eagle Corporation and it, too, may have been powered by the Chapley steam engine.

At an early date, a room appears to have been created in the southwest quadrant of the east side of the building next to the lint room. It included stairs to the second floor and two windows on the south wall. Prior to installation of the system gin, this room was extended to the east, probably in two stages and including another window. Elements of the timber frame for the first cotton press were incorporated in the floor framing of these extensions. Since cotton seed was not considered valuable except for replanting until the mid-1880s when its usefulness as a cooking oil was first demonstrated, a seed room may not have been necessary; but if it were, this added room was probably used as a seed room.<sup>49</sup>

49. Range, p. 156.



**Figure 11** Conjectured floor plan of Gin Barn after installation of "system gin" about 1895. (NPS-SERO-CRS, 2001)

### System Gin, c. 1895

It is not clear what change in circumstances in the late- 1890s allowed Matthew Hertzog to rebuild his house that was burned in 1864; but whatever those circumstances, they may have been a factor in his decision to renovate his Gin Barn around the same time. As noted above, when the "system gin" and hydraulic press were installed around the turn of the century, the old mechanical cotton press was left in place to be used for baling hay. However, there is physical evidence for several alterations that were made at the east end of the building to accommodate the new ginning equipment. These included removal of a portion of the second floor for installation of the dual- box hydraulic press and removal of the room and stairs to the second floor in the southwest corner of the gin room. The stairs remained at the northeast corner of the gin room. A new open-

ing was created in the second floor, and a slide that was used to move the finished bales was constructed to Door B.<sup>50</sup> It may have been at this time as well that arcades were added on both sides of the building, probably replacing the shed off the east end of the building that is depicted on the Walmsley plat. Wagon loads of cotton could then be driven through the arcade on the north side where a large suction tube was used to transport the cotton from the wagons to the gin on the second floor.

Hertzog's renovation also included "a seed house on the river bank," according to the Delacorda interview in 1941. Keel's "Structure Group C" corresponds to the seed house location recalled by Betty Hertzog and to Delacorda's description of the system in 1941. In addition, Delacorda remembered that the new

50. Differences in framing of openings in the second floor suggest which were original and which were later alterations. Lumber used to frame the opening for the turntable, for instance, is similar to that used to close the stairwell in the southwest corner of the gin room.

system included a "delivery pipe from the gin house to the seed house, a distance of one hundred yards or more." The large fan now under the south arcade apparently provided suction for moving cotton through the system while also being used to blow the seed from the Gin Barn through the delivery pipe to the seed house. Alterations in 1939, 1982, and 1995 have obliterated evidence for the location and configuration of this equipment, but the arrangement may have been similar to that which is partially shown in Figure 27 in the "Physical Description" below.

Finally, to protect his investment, Hertzog may have replaced the original wood- shingled roof with metal roofing at this time, although that may not have occurred until the early twentieth century when Hertzog is known to have re-roofed his store with metal. The engine house was roofed with a standing- seam metal roof and the use of solid decking indicates it may never have had a wood- shingled roof. Photographs of the interior of the Gin Barn in 1994 clearly show the sort of widely- spaced, slab-sawn decking one would expect with a mid-nineteenth century wood- shingled roof.

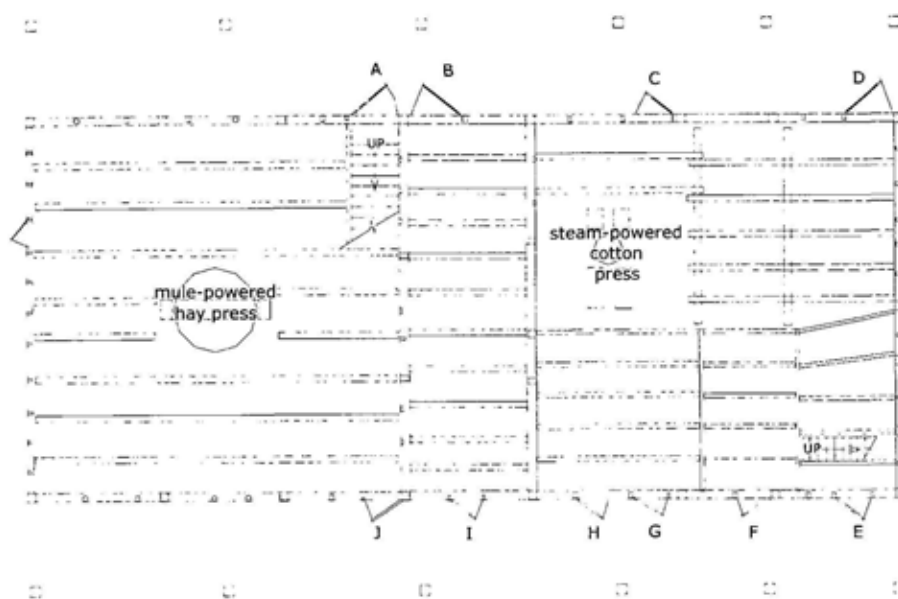
### **Gin Barn, 1939**

After Hertzog's turn- of- the- century renovation of the Gin Barn, there were no more significant alterations to the building before his death. The steam engine is thought to have been converted to diesel power, but that required few, if any, changes to the building itself. The tornado that struck Magnolia early in 1939

caused extensive damage and, as noted above, Hertzog made the decision to cease ginning operations at that time. The building was, however, still useful as a hay barn and so repairs were made to accommodate that use. The engine house was cleared completely away except for the brick foundation for the engine. Most significantly, both ends of the barn were completely enclosed at this time, except for a single door (since removed) at the west end of the building. Joists and flooring were also added where there had been none at ground level at the west end of the building and on the north side of the east end. The original stairs from Door D were also removed at this time and replaced by the present stairs near the southeast corner of the barn. The opening for the slide for cotton bales near the north end of the old lint room was also closed at this time.

After World War II, the Hertzogs continued to farm Magnolia, but mechanization slowly replaced the mules that had historically done much of the work. This, in turn, reduced the need for hay, and well before Matthew Hertzog II died in 1973, the old gin barn was almost useless. The same was true of many other historic buildings throughout the parish, especially rural landmarks and the farm- related structures that were rendered obsolete by the agricultural changes that swept the country in the mid-twentieth century. Around this time, the Hertzogs tore down the seed house.<sup>51</sup>

51. Telephone interview with Betty Hertzog, June 2001.



**Figure 12** Floor plan of Gin Barn after repairs and conversion for hay storage in 1939. (NPS-SERO-CRS, 2001)

### Museum Contents, 1976

Museum Contents is a non-profit organization that was incorporated in September 1964 by a group of Natchitoches citizens to help preserve the parish's historical resources. One of their first successes came in 1967 when they acquired the badly-deteriorated Aubin-Roque House (c. 1797) and moved it from its original site near Bermuda on Isle Brevelle to its present location between Front Street and the river in Natchitoches. Ownership of real property was not the primary goal for Museum Contents, however. From the beginning, the organization saw its primary role as a "pass through" to other organizations who might be larger and better established but who, for a variety of reasons, could not react quickly when collections or artifacts were offered for sale or when historic buildings

were threatened. Recognizing the significance of the plantation's buildings, the heirs of Matthew Hertzog II decided in 1976 to donate the gin barn, the blacksmith shop, the plantation store, the overseer's house and the surviving slave houses to Museum Contents with a concurrent lease on the grounds.

In 1979 the gin barn and the other buildings at Magnolia were officially listed on the National Register of Historic Places, but plans to turn the working core of the plantation into a museum complex foundered for lack of funds. Following some storm damage in 1982, Museum Contents's president Robert B. DeBlieux was able to secure a \$21,500 grant to repair the barn from the Louisiana Office of Culture, Recreation, and Tourism. Work included replacement of perhaps one-third of the pole rafters on the building and repair of the metal roofing. Replacement rafters were cut on the plantation.<sup>52</sup>

In 1986, the Historic American Building Survey (HABS) documented the gin barn and produced six sheets of measured drawings.<sup>53</sup> In November 1994, Congress authorized the establishment of the Cane River Creole National Historical Park, and Museum Contents promptly donated its holdings at Magnolia to the park.

#### **National Park Service, 1994**

In the fall of 1994, Regional Director Robert Baker and others toured the Cane River area to familiarize themselves with the proposed national park. During the course of that tour, significant storm damage was discovered at the Magnolia Gin Barn. Subsequent inspection of the building also revealed infestations of termites that had severely damaged portions of the roof, leading to fears that the roof was in imminent danger of collapse. Ann Beha and Associates, nationally-recognized specialists in historic preservation, conducted a structural analysis of the building in the summer of 1995 and issued recommendations for stabilizing the structure until an HSR could be completed. At that time, too, it was mistakenly assumed that the entire roof structure had been replaced by Museum Contents in 1981.<sup>54</sup> Contractor Frank

Pavkov was awarded the contract for complete replacement of the roof (structure and covering) in October 1995; work was completed in February 1996.<sup>55</sup>

According to Ms. Hertzog, much of the flooring from the second floor around the old cotton press was scavenged by tenants for fire wood after World War II. Photographs of the interior of the barn show that all or most of the second floor around the press was gone by the time Museum Contents made repairs to the building in 1982.

In 1986, the Historic American Buildings Survey (HABS #1193A) recorded the structure with six sheets of drawings and a number of photographs (see Appendix). Nearly all of the flooring remained intact at the first floor level when the building was recorded by HABS in 1986. In order to provide access for termite treatment around the building's foundation, some of the flooring was removed prior to 1995. The remainder of the flooring on the first floor was taken up for the same reason in 1996 and stored. It has since mostly disappeared.

In 1996, the Historic American Engineering Record (HAER) recorded the gin and presses with five sheets of drawings and a narrative describing their operation.<sup>56</sup> These are included in the Appendix to the present report.

52. "Historic Cotton Press Unveiled This Week," *The Natchitoches Times*, 6 November 1983.

53. HABS# LA-1193-A.

54. Jean Lafitte National Historical Park and Preserve, "Magnolia Plantation Cotton Gin Barn Report," December 9, 1994.

55. Contract #14431B500095051.

56. HAER# LA-11.

**Magnolia Gin Barn**

1835		Gasparite LaCour sells land on which gin house is located to Ambrose LeComte - "documents commenting on this acquisition mention a gin house, dwellings, and outbuildings. The cotton gin accommodated a raised gin stand, holding areas, and a save room for the lint." <sup>a</sup>
1845		Gin house and stand were valued at \$2,800. "Since a gin was referred to in the 1835 deed, its 1845 appraisal suggests that LeComte may have enlarged and outfitted the gin house with expensive machinery; this may have included the mule- operated, screw- type cotton press, which is still in place." <sup>b</sup>
1852		Matthew Hertzog marries Ambrose LeComte's daughter Atala; Magnolia produces 479 bales of cotton (combined yield from all LeComte plantations is 854).
1856		Worker "burnt in press" at Magnolia.
1858		Plat of Magnolia is surveyed and recorded by Ambrose Lecomte II; shows "Gin" in place.
1860		Magnolia gin produces over eleven hundred, 400- pound bales of cotton.
1864	Mar 26	Cotton burned at Magnolia.
	Mar 31	First- Tenth- Twentyninth Maine passes Magnolia where fire was still "blazing" after five days.
	Apr 22	Federal troops camp at Magnolia; Big House is burned.
1870		Magnolia produces 213 bales of cotton.
1883		Ambrose LeComte II dies; inventory shows Chapley steam engine and an Eclipse gin stand and condenser in Gin Barn.
1883- 85		Munger develops "system ginning," whose concept and technology are still in use today.
1889	Aug 23	Patent date of present Continental gin in Gin Barn.
1895		Matthew Hertzog buys parts in New Orleans for Eagle gin <sup>c</sup> .
1897		Big House rebuilt.
c. 1900		Installation of present Continental Gin outfit <sup>d</sup> .
1903	May 25	Matthew Hertzog dies (b. 1829).
1908		First dam on Cane River ends river traffic.
1919		Cotton prices peak at 43 cents a pound.

**Magnolia Gin Barn**

1921		Magnolia produces 280 bales of cotton.
1927		Great Flood sweeps Mississippi Delta and Red River Valley, including Cane River.
1939	Jan	Tornado destroys engine house; relatively minor damage to Gin Barn.
1973		Matthew Hertzog, Jr., dies.
1976		Hertzogs donate Gin Barn, slave house, blacksmith house, store, and overseer's house to Museum Contents, Inc.
1978		Seed house razed.
1979		Gin Barn and other buildings at Magnolia listed on National Register of Historic Places.
1983		\$21,500 grant from Louisiana Office of Culture, Recreation, and Tourism to Museum Contents to "restore" gin barn; repairs to pole rafters and replacement of one- third of metal roof <sup>c</sup> .
1986		Historic American Building Survey documents Gin Barn.
1994		Museum Contents donates Gin Barn to NPS.
1995		Historic Engineering Record documents gins and press.
	Jun- Jul	SEAC's archaeological survey; Beha structural investigation and analysis.
1996	spring	Replacement of entire roof system and most foundation piers completed.

a. Keel, p. 24.

b. *Ibid.*

c. Letter from Ambrose Hertzog, Jr., to Charlie Thompson, Continental/Eagle Corp., 2 December 1989. Hertzog states that "we have records" indicating this purchase; Robert DeBlieux Coll., Cammie Henry Research Center, Watson Memorial Library, Northwestern State University of Louisiana.

d. Letter from Tommy Brown, Continental Eagle Corporation, to Ambrose Hertzog, Jr., 18 December 1989, Robert Deblieux Coll.

e. "Historic Cotton Press Unveiled This Week," *The Natchitoches Times*, 6 November 1983.

## Chronology of Development & Use



# Physical Description

The Gin Barn is located near the southern boundary of the Magnolia Plantation unit of the Cane River Creole National Historical Park. Situated about 225 feet east of Hwy. 119, the building is a two-story, wood-framed, end-gabled building with a metal roof and set on low brick piers. The building is rectangular, measuring approximately 89 feet east to west and approximately 38 feet north to south, plus arcades 9'-8" wide that run down both sides of the structure.

Internally, the first floor level is divided into three spaces, with ginning equipment at the east end, the wooden-screw cotton press at the west end, and what was probably a "lint room" in the center. Framed openings in the ceiling apparently formed "drops" for the ginned cotton prior to the installation of the Mungler system gin. The second floor, which is reached by a set of stairs from the north arcade and by a set from the east end of the machinery room, was originally divided into two spaces. At the

**Note:** A plan of the existing building along with elevations and framing diagrams are included at the end of this section.

## Physical Description



**Figure 13** View of Gin Barn from northeast, with cistern visible in foreground. (NPS-SERO-CRS, 2001)



**Figure 14** View of Gin Barn from southwest. (NPS-SERO-CRS, 2001)

east end of the second floor are the gin stands, condensers, hydraulic press, and other elements from the Munger system gin, the last generation of ginning equipment in the building. The second floor at the west end, which has been largely removed, is set about two feet below that at the east end and originally formed a loading floor around the wood-screw press. Another room has also been identified on the south side of the machinery room, as evidenced



**Figure 15** View north in center room, originally used as a lint room. (NPS-SERO-CRS, 2001)

by floor framing and the building's only instance of a vertically-paneled wall. The interior partition walls for this room were probably dismantled when the Munger system was installed at the turn of the century.

### Foundation

The structure is set on a series of low brick piers, with the exception of a single post at the east end of the building, which is set on a large stone placed at grade level. The twenty-two perimeter piers were rebuilt on concrete footings in 1996; and, although the mortar was lost, the original brick were re-used. Low, historic, brick piers also support some of the building's internal sills; the piers on either side of the lint room are nearly below grade. Brick for piers are generally 2" to 2¼" by 8" by about 4".

The overall dimension of the foundation for the steam-powered press is approximately 10'-2" by 4'-7". The foundation is composed



**Figure 16** View southeast in machinery room, in probable location of original seed room. (NPS-SERO-CRS, 2001)

of four separate piers, the two at the north end being 18" by 30" and the two at the south end being 17½" by 48". Brick measure about 2" by 8½" by 4".

At the east end of the building is an older generation of piers that do not appear to relate to anything in the present building, although they might have been associated with the first cotton press or, perhaps, the first generation of steam equipment. Two of these piers are located near the center of the space. One is about 16" by 24", 12" high, and is lying on its side. The other, which is just behind the toppled pier, is about 12" by 24" with only two courses above grade. It is set at an angle that does not appear to relate to the present building. There may be other piers on the east side of the brick base to the steam press, but archeology will be necessary to confirm that. Curiously, the corners of both of the visible brick



**Figure 17** View of early brick piers under machinery room floor. (NPS-SERO-CRS, 2001)



**Figure 18** View of northeast corner of barn, showing brick pier rebuilt in 1996. (NPS-SERO-CRS, 2001)

piers are smoothly rounded; this rounding does not appear to be the result of erosion but rather of abrasion and wear.

### Structural System

The Gin Barn is a timber- framed building with a combination of hewn and circular- sawn

## Physical Description



**Figure 19** View of typical sill and post with historic splined connection intact. (NPS-SERO-CRS, 2001)



**Figure 20** View of typical beam/post connection, reinforced with metal brackets in 1996. (NPS-SERO-CRS, 2001)

framing members. All of the historic material is cypress. The engineering report in the Beha study (see Appendix E) stated that “in almost all cases, the original or replacement cypress timber frame was essentially free from termite damage.” Where damage was present, “there



**Figure 21** View of floor framing at east end of Gin Barn. (NPS-SERO-CRS, 2001)

was little to imply a reduction of load capacity.<sup>57</sup> Connections were originally made using traditional mortise- and- tenon connections. At the second floor level, the connection of girders to posts is accomplished by a unique splined connection pegged into place. Some of these connections were later reinforced by bolts and rectangular iron plates. As part of the stabilization work in 1995, the splines at all second floor connections were replaced and reinforced again by large metal U- brackets let into and bolted through the girders. The splined connection was also used in the connection of some posts and braces to the sill at the first floor level, particularly on the south side of the

57. See Appendix E, Silman engineering report, p. 3.



**Figure 22** Ceiling in "lint room," showing framed opening for ginned cotton from first or second generation gin at second floor level. (NPS-SERO-CRS, 2001)



**Figure 23** View of framing members in floor at east end of gin barn, with end of hewn beam visible at center, presumably from first cotton press. (NPS-SERO-CRS, 2001)

building; and most of these connections remain intact. That the splined connection was used at some but not all of the first floor level connections suggests that all were made after the building's original construction.

*Sills, Girders, and Posts:* Sills, girders, and posts are all hewn and generally 9" to 10" by 11" to 12", except at the building's ends where substantially smaller sills were used to infill what were originally the barn's open ends. The sill at the south side of the center "lint room" has empty square mortises, and another section of the sill on the south side of the gin room contains empty dove-tail mortises. Both of these sills were apparently salvaged from another building as were some members of the internal floor framing. As the HAER documentation (1996) noted, the building "appears to have been constructed at one time, rather than added to over



**Figure 24** View of framing in lint room ceiling for cotton bale slide which was added along with new hydraulic press around 1900. (NPS-SERO-CRS, 2001)

a period of years or decades" and the character of sills, beams, and posts "are consistent with same-date construction."<sup>58</sup>

58. Historic American Engineering Record #LA-11, p. 5.

## Physical Description



**Figure 25** View of southwest corner of barn; wall at right was added in the late nineteenth or early twentieth century. (NPS-SERO-CRS, 2001)

Near the center of the east end is a single large post that is 7" by 10" and unlike other posts, it appears to sit directly on the ground. The sill at the south end of the east side is 5½" by 9" and is mortised into the corner post at the southeast corner and into the center post that runs to the ground. The other two posts at the south end of the east wall are each about 8" by 8" and are set with their inside face flush with the inside face of the sill, lapping over the outside face of the sill and fixed with 1-inch bolts.

Previous inspections have indicated that the arcade posts were replaced in 1981; but a closer inspection during the present study shows that at least some of the posts on the south side of the building may date to repairs in 1939.

*Joists:* There is a combination of hewn and circular-sawn joists in the building. The lint room at the center of the building was the only

part of the first floor of the barn that was originally floored. In the lint room, flooring, which is now missing, was laid on ten roughly-hewn joists, approximately 7" by 8" and running east and west. Joists are set on centers 38" to 50" apart and are mortised into the sills. Except for the last three at the south end, joists are resting on a log sleeper set on low brick piers that are nearly flush with the ground. Some of these have been partially buried by armadillos or other burrowing animals.

The second floor is framed with circular-sawn joists running east and west. The floor around the cotton press is set about two feet below the floor above the lint room and gin room at the east end of the building, probably to accommodate different machinery. Joists at the west end of the second floor around the cotton press are approximately 5" to 6" by 9" to 10", 11" to 12" long, and are set on centers approximately 36" to 39" apart. Joists at the east end and above the lint room are a similar size but range from a little over 8' in length to nearly 14' and are set on 38" to 39" centers. Joists are mortised into the hewn beams at each end of the building and on the east side of the lint room. On the west side of the lint room, the floor joists are let into the studs in the wall on that side of the room. Joists are also let into the pair of beams that support the cotton press at the west end of the building and into the pair of similar beams that at one time supported a cotton press at the east end. The two beams that support the existing press are about 9½" by 13½" and 9" by 12" and are set about 11'-2" apart, inside face to inside face. The two beams that supported the miss-

ing press at the east end are slightly larger, around 10" by 15", and are set closer together, approximately 99" apart inside face to inside face. All of the beams associated with the cotton presses are finely finished and hand-planed, unlike any of the other beams in the building. The end of one of the old cotton press beams at the east end of the building is visible in a photograph from 1994 and shows chamfered edges at the end of the beam, similar to the chamfered edges of the cross braces on the earliest doors in the building. Previous changes have replaced most of the historic connections between the beams, eliminating one clue that might have indicated which, if either, of the cotton presses was contemporaneous with the main frame of the building.

The floor framing on the south side of the first floor at the east end appears to have been added in two stages, although it is possible that the westernmost section of this framing was contemporaneous with construction of the building. The two girders for this floor were salvaged from elsewhere. One has empty mortises (39" on centers and 3½" by 4" by 2") in addition to the mortises for the existing rough-hewn joists, which are about 7" by 8". At the east end on the south side, floor joists are mortised into the sills, but only two of the present joists are historic. These two are splayed or angled to meet the sill between the large posts in the east end wall. The last two joists in this section of the floor are full-dimen-



**Figure 26** View to southeast showing part of east end of barn; note empty mortises for framing around missing stairway. (NPS-SERO-CRS, 2001)

sioned 2" by 6" joists that do not fit the mortises and were probably installed in 1939 to support the stairs that were built at the same time.

A rectangular opening (about 5' by 10') once existed in the second floor framing at the southwest corner of the gin room. Presumably created for stairs, the opening appears to have been contemporaneous with the floor system on the south side of the gin room. Similarities in the material used to close the opening indicate that these stairs were removed when the existing steam-powered system gin was installed. Three empty mortises in the second-floor sill at the south end of the gin room are good evidence that the existing gin and press were not contemporaneous with the building's original construction.

## Physical Description



**Figure 27** View of original pole-rafter roof in 1995. (NPS-SERO-Architecture, 1995)



**Figure 28** Detail of typical ridge connection in original roof, from partial rafters now in CARI Collection. (NPS-SERO-CRS, 2001)

*Braces, Studs, and Plates:* Braces, studs and plates are circular sawn and variable in size. Sizes are random and include 2" by 6", 2½" by 4", 2½" by 4½", 3" by 6", 4" by 5", 4" by 6", and 5" by 7". The top plates of the side walls are made with 6½" by 10" lumber. A few studs on the sides near the west end of the building have



**Figure 29** View of south dormer with original framing and decking intact. (NPS-SERO-CRS, 2001)

been replaced with 5" poles. All or nearly all of the studs at the east and west ends of the building are modern replacements of the originals.

### Roof

Earlier descriptions of the building's roof have sometimes been based on assumptions that were incorrect, particularly that the roof framing was completely replaced in 1981, reusing some of the original framing members. In an interview with NPS staff in April 2001, Bobby Deblieux, then-president of Museum Contents, stated that only about one-third of the roof was rebuilt at that time. Inspection of the surviving rafter ends indicates intact nineteenth century joinery, another indication that the entire roof was not removed in 1981.



The original roof was entirely removed in 1995, but photographs show that it was originally framed with twenty- nine pairs of pole rafters, set on centers approximately 36" apart. Betty Hertzog remembers these rafters being a combination of cypress and black locust.<sup>59</sup> In addition, two of the original pole rafters (both cypress), complete with lapped- and- pegged ridge connection, have been preserved by the park and, as noted in the previous section, offer important clues to the building's origins.

In 1995, the original pole rafters on the main roof were replaced by the existing rafters, which are 6" by 8", pressure- treated pine, set on centers 36" to 42" apart. Collar beams are the same size, with the connection reinforced by metal T- shaped plates. On the arcades, the rafters are 3" by 6" set on an outside beam 5½" by 7¼". Roofing is corrugated steel, specified as 18 gauge and attached with ½" self- tapping, hex- head, galvanized wood screws with sealing washers. Only the framing and decking of the two dormer roofs appears not to have been replaced in 1995.

### Flooring and Siding

All of the flooring at the first floor level has disappeared except for fragments remaining under the sole plate at the south end of the lint room. Flooring at the second floor is typically 9" to 11" wide, generally ¾" thick.

59. Interview with Ms. Betty Hertzog, May 2001.



**Figure 30** View southwest of roof framing installed in 1996. (NPS-SERO-CRS, 2001)



**Figure 31** View of original flooring at south side of lint room. (NPS-SERO-CRS, 2001)

The east and west ends of the building are sided with ¾" by 6" lapped siding, some of which was installed in 1939 but most of which dates to the 1980s. On the long sides of the building under the arcades, boards ¾" thick

## Physical Description



**Figure 32** View of north side of building, showing typical open siding. Note that siding near center is attached to the interior face of the studs. (NPS-SERO-CRS, 2001)



**Figure 34** View of Door D, one of the oldest doors in the barn. (NPS-SERO-CRS, 2001)



**Figure 33** View of Door A, added to second floor around cotton press. (NPS-SERO-CRS, 2001)

and 5" to 6" wide are spaced 4" to 5" apart. On the north side of the building, most of this siding is installed on the exterior of the framing; on the south side, most is installed on the interior of the framing. The use of wire nails generally distinguishes replacement siding from 1939 or later; earlier siding is attached with cut nails.

### Windows and Doors

*Door A:* 4'-7" by 7'-7"; constructed with wire nails and  $\frac{3}{4}$ " boards, 6- $\frac{1}{2}$ " to 6 $\frac{3}{4}$ " wide; rim lock, 6" x 3- $\frac{1}{4}$ " by  $\frac{7}{8}$ "; metal strap hinges ( $\frac{1}{4}$ " stock), 14- $\frac{1}{2}$ " by 1- $\frac{1}{2}$ ".

*Door B:* 4'-8" by 7'-7"; constructed with cut nails and  $\frac{3}{4}$ " boards, 9", 11- $\frac{3}{4}$ ", and 11- $\frac{7}{8}$ " wide; boards are hand planed; top cross brace

has chamfered edges; rim lock, 9- 1/2" by 4- 3/4" by 1- 1/2", bolted not screwed to door; 2- 1/2" by 5" ghost of diamond-shaped escutcheon similar to extant plate on Door D; modern repairs with screws.

*Door C:* 3'-1" by 7'-7", 1 1/2" by 9" strap hinges, chamfered edges on cross brace; no lock set ever installed.

*Door D:* 5'-0" by 8'-1", 32" strap hinges; cut nails; rim lock, 4- 7/8" by 9- 1/2" by 1- 3/8", triangular escutcheon (similar to door B); boards are 5/8" x 11 1/2" to 12"; cross braces out of 1" stock, top and bottom 9- 3/8" wide, diagonal 10 1/4" wide, all with chamfered edges.

*Door E:* 3'- 7/2" by 7'- 1/2", 14 1/2" strap hinges, cut nails; actual opening goes to 8'.

*Window F:* 4'-10" x 2'-11", 11" hinges - - not used after installation of steam press since some of equipment runs through it. Hinged on right (east) jamb.

*Door G:* 2'-10" by 6'-11", originally had 14" strap hinges, replaced by modern hinges nailed in place with wire nails; hinged on left (west) jamb; door is constructed similar to Door D above; opening was originally constructed as a window with sash like Window H below.

*Window H:* 2'-10 1/2" by 4'-9", similar hinges to F but no shutter; hinged on left (west) jamb; opening was originally fitted with sash

*Door I:* 3'-5" by 7'-0", 11" hinges, like window hinges.



**Figure 35** View of hinge and escutcheon on Door D. (NPS-SERO-CRS, 2001)



**Figure 36** View of window H, which originally had sash but was closed when existing gin machinery was installed c. 1900. (NPS-SERO-CRS, 2001)

*Door J:* 3'-6" by 7'-6", strap hinges, detached from original position.

## Physical Description



**Figure 37** View to southwest of brick foundation for steam engine. (NPS-SERO-CRS, 2001)



**Figure 38** View of belt-driven flywheels at east end of barn, which would have been connected by leather belts to the engine outside the building and to the machinery inside. (NPS-SERO-CRS, 2001)

### Steam Engine

Keel's archaeological investigation of Magnolia in 1999 revealed evidence of two other structures, both now missing, in the vicinity of the Gin Barn.<sup>60</sup> His "Structure Group A," which is located about nine feet off the east end of the

60. Keel, pp. 60-61.

Gin Barn, was part of the engine house that was destroyed in the 1939 tornado. Depicted in a photograph taken shortly after the tornado, this structure was wood-framed, had a standing-seam metal roof, and appears to have consisted of two separate sections, the eastern section housing the boiler and the western section, which was slightly lower, housing the engine itself. The only above-ground feature remaining from that structure is the brick base to which the engine was bolted. Measuring approximately 36" wide, 110" long, and 19" high, this feature consists of several courses of brick (generally 4" by 8½" by 2") into which 1-inch threaded steel rods were set to attach the engine.

Since the building that housed the boiler and steam engine that powered the gin was destroyed in 1939 and the equipment subsequently sold, very little of the gin's power system remains. The most notable features are part of the brick base to the steam engine, located just east of the building, and the large wooden wheels and drive shafts that remain in the east end of the barn. Repair and residing of the east end barn after the 1939 tornado obliterated a number of openings through which the drive belts ran from the engine house to the machinery inside the barn.

### Cotton Gin

The existing cotton ginning machinery is a typical "Munger system" gin, most of it installed around 1900. As noted in the HAER report



**Figure 39** View of disassembled Eagle gin stand in northwest corner of first floor. (NPS-SERO-CRS, 2001)

(see Appendix C), most of its components are present although the cotton suction apparatus is almost completely disassembled. The pneumatic elevator includes the fan now lying outside under the south arcade, various flue ducts lying around the second floor, and the vacuum box or separator, which is detached and lying under the condenser but was originally attached to the distributor above the gin stand. Both gin stands remain intact on the second floor. However, replacement of the roof in 1996 and of much of the siding in 1939 and 1982 has obliterated most evidence for how the gin's power train connected to the engine house and how seed was discarded from the system and transported to the seed house.

In addition to this equipment, which was used until 1939, an older Eagle gin stand is lying in the northwest corner of the gin room end of the barn and parts of its associated equipment may have been incorporated into the present system gin. Representatives of the Continental Gin Company have noted that any equipment



**Figure 40** View of portion of Munger system gin machinery on second floor of barn. (NPS-SERO-CRS, 2001)



**Figure 41** View of Continental gin stand on second floor. (NPS-SERO-CRS, 2001)

carrying the imprint of their company must date after 1899, when Continental was formed by consolidation of several companies. The Eagle Gin was apparently the second stand used in the Gin Barn, replacing the Eclipse gin that was mentioned in the 1887 inventory and perhaps installed when the building was first constructed.



**Figure 42** View west under south arcade, showing blowers and other equipment associated with c. 1900 system gin. (NPS-SERO-CRS, 2001)

### Hydraulic Cotton Press

The dual-box hydraulic cotton press was also installed around 1900. Like the gin machinery, the hydraulic press remains almost completely intact. Two stories high, the press is supported by four large brick piers which frame the hydraulic cylinder resting on wood beams in the valve pit at grade level. The two press boxes, which revolved so that one could be filled while the other was being emptied, are located on the second floor along with a cylinder with a ram for tamping the cotton as the box was filled, prior to the action of the upward-charging ram from the cylinder below, which actually pressed the cotton into bales.

### Wood-Screw Cotton Press

As noted in previous sections of this report, the wood-screw cotton press in the east end of the Gin Barn is one of only six such presses that



**Figure 43** View of hydraulic cylinder and supporting brick piers for press. (NPS-SERO-CRS, 2001)



**Figure 44** View east of dual-box hydraulic press at second floor, with gin stand visible in background. (NPS-SERO-CRS, 2001)

remain in existence and is the only one that remains intact on its original location. The press was state-of-the-art when it was constructed; but was still handcrafted except perhaps for some manufactured hardware. It consists of three main parts: a large timber frame, a movable yoke and screw assembly, and a pivoting press box assembly. Resting on a pair of girders mortised into posts on either side of the building, the massive cypress frame is about 12'-3"

wide and, stabilized by four long diagonal beams, rises almost to the ridge of the barn roof. The oak screw, which is about 16" in diameter, is secured at the top to the yoke, which the HAER report describes as a "fish-belly shaped timber," and, at the bottom, to the platen at the top of the press box. The yoke itself slides up and down in slots cut into the inside face of the timber upright supports. The press box assembly rests on an iron pivot and consists of upright timbers inclined slightly inward, a cross arm through which the screw is threaded, and upper and lower boxes, both of which have gates and movable end rails and base. The precise nature of the foundation for the press has not been determined.

### Associated Site Features

*Engine House:* Keel's archaeological investigation of Magnolia in 1999 revealed evidence of two other structures, both now missing, in the vicinity of the Gin Barn.<sup>61</sup> "Structure Group A," which he found close to the east end of the Gin Barn, must be the engine house that was destroyed in the 1939 tornado. Depicted in a photograph taken shortly after the tornado, this structure was wood-framed and appears to have consisted of two separate sections, the eastern section housing the boiler and the western section, which was slightly lower, housing the engine itself. The only above-

61. Keel, pp. 60-61.



ground feature remaining from that structure is the brick base to which the engine was bolted. Measuring approximately 36" wide,

**Figure 45** View of top frame of wood-screw cotton press, which would have originally been surrounded by flooring. (NPS-SERO-CRS, 2001)



**Figure 46** View of cotton press at ground level, showing door where finished bale was removed. (NPS-SERO-CRS, 2001)

110" long, and 19" high, this feature consists of several courses of brick (generally 4" by 8½" by 2- 3/8") into which 1" threaded steel rods were

## Physical Description



**Figure 47** View to northeast of cistern at Gin Barn. (NPS-SERO-CRS, 2001)



**Figure 48** View of Prud'hommes' gin at Oakland, showing elevated flue to transport seed from gin to seed house. A similar apparatus would have been used at the Magnolia gin, but has now disappeared. (NPS-SERO-CRS, 2001)

*Other Archaeological Features:* Keel did not identify the structure that created "Structure Group B," which is located about 75 feet south-east of the Gin Barn, but historical evidence suggests that this was a structure associated with an earlier ginning operation. A ginning operation appears to have existed in the vicinity of the present barn when Ambrose LeComte acquired the property in 1835 and this structure group could represent the site of that first gin house or of a typical outdoor cotton press with which it would have been associated. The area surveyed during the 1999 archaeological investigation did not include the foot print of the present barn where other archaeological resources appear to be located. Investigation of this area has been proposed and, when completed, may shed light on the variety of ginning operations that appears to have occurred on the site.

*Cistern:* A single cylindrical cistern, most likely constructed when the first steam-powered equipment was installed in the barn, is situated just off the northeast corner of the Gin Barn. Measuring about 16 feet deep and 15 feet in diameter, it has a volume of about 105 cubic yards, giving it a capacity of approximately 21,150 gallons.<sup>62</sup> The brick for the cistern are generally 4¼" by 9" by 2" and are laid in alternating courses of headers and stretchers. These brick and the mortar in which they are laid are significantly different from that found in the nearby brick engine base, suggesting that they are not contemporaneous with one another. Although none of the mortars have undergone

62. Dimensions were furnished by Keel.



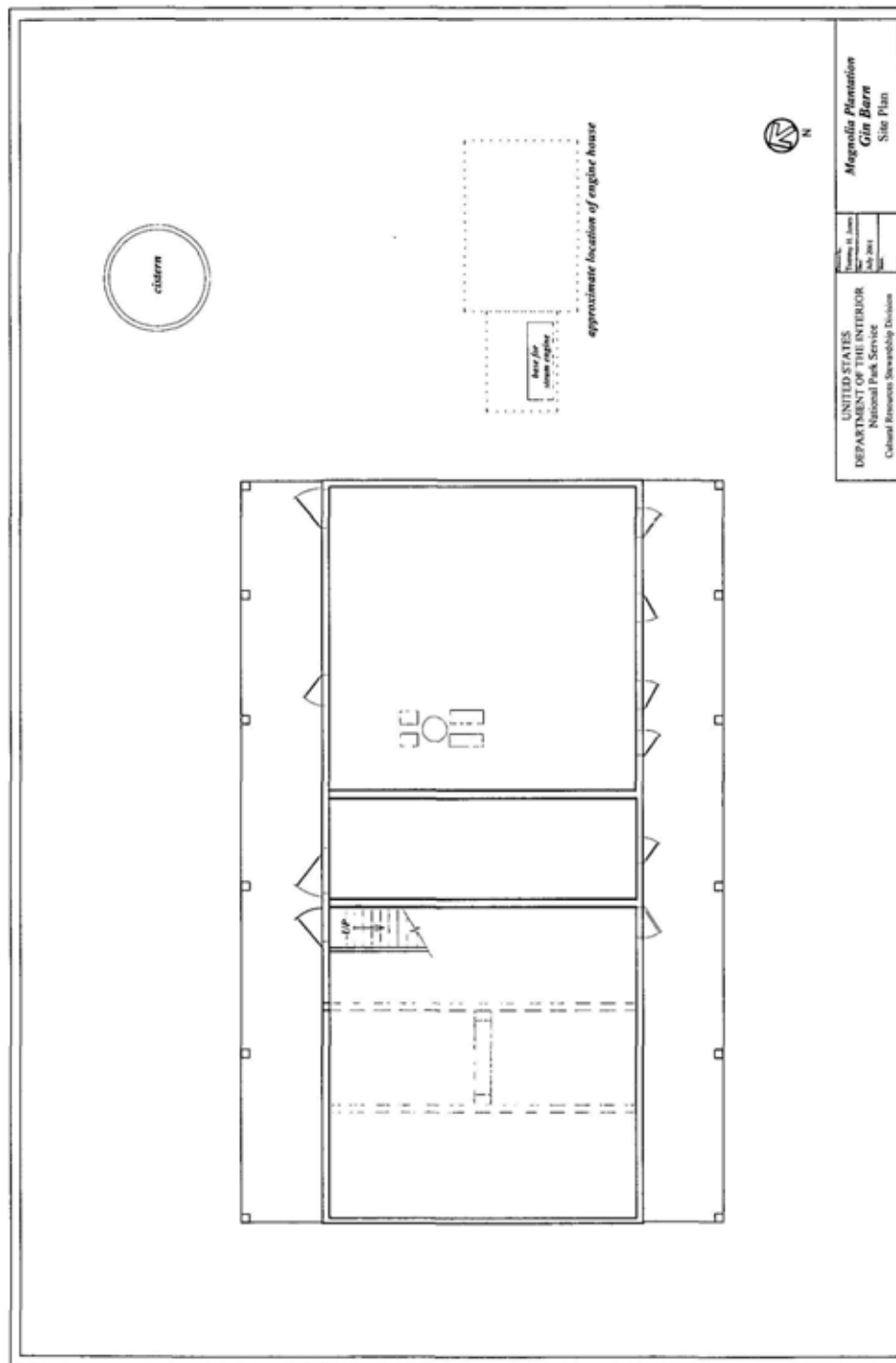
lab analysis, the mortar in the engine base is clearly a Portland- cement type mortar, an indication that the cistern may be the older of the two structures, although it probably postdates the building itself, whose piers were constructed with a soft lime mortar.

*Seed House:* One of the most visible components of the Magnolia ginning operation has been lost entirely, except for possible archaeological remains: the seed house. After the 1880s, cotton seed oil became an important

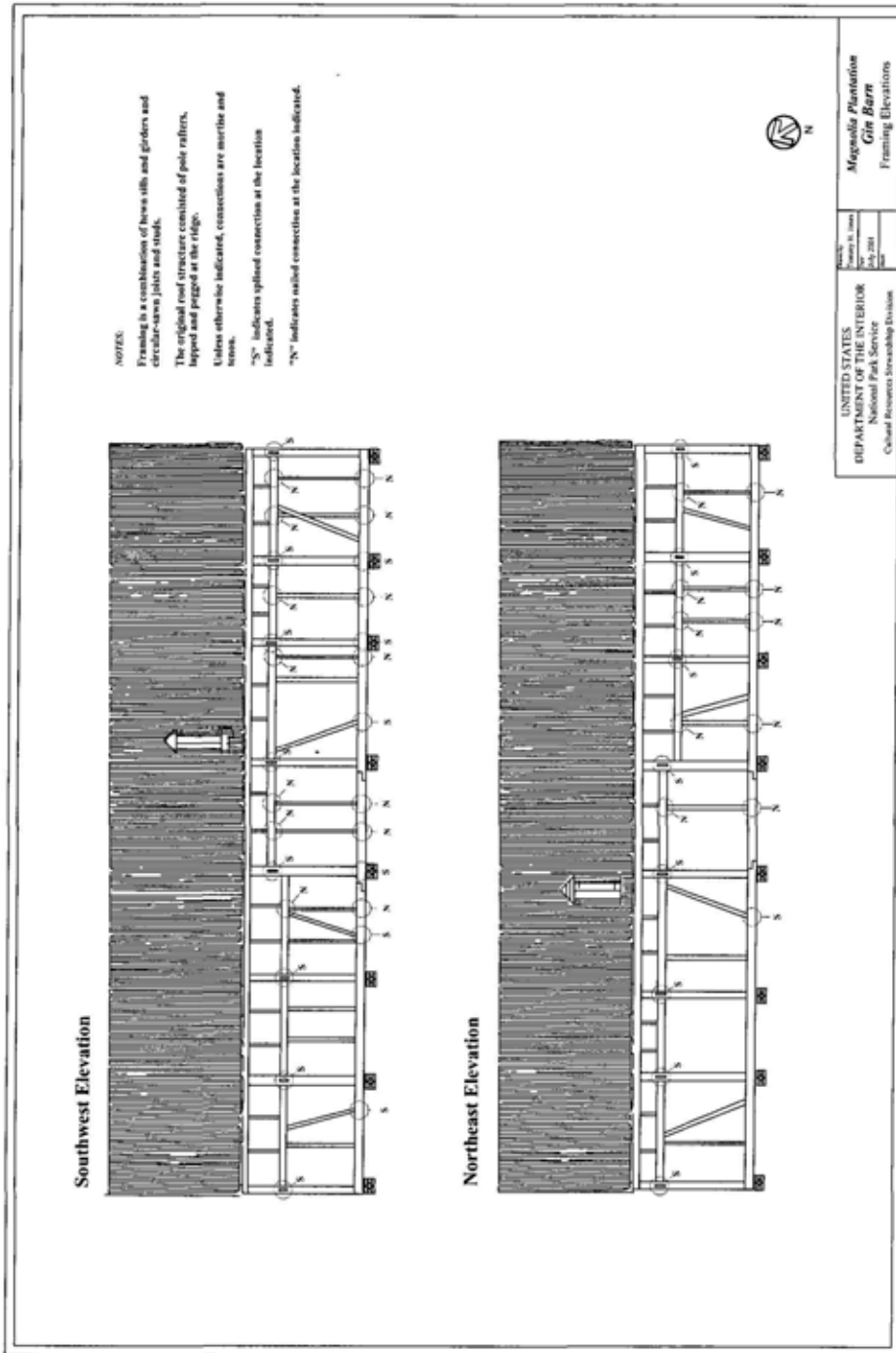
commodity and one of the features of most plantation gins like those at Magnolia and at Oakland was a separate seed house with an elevated flue that transported seed from the gin to the seed house. No photographs have been located of the Magnolia Gin Barn prior to 1939, when the flue to the seed house was destroyed or dismantled along with the engine house.

The seed house itself stood until the 1970s and is remembered by Ms. Betty Hertzog as having been located just north of the gate to Hwy 119 at the southern end of the park unit.

# Physical Description



**Figure 49** Plan of existing site.  
(NPS-SERO-CRS, 2001)



**Figure 50** Elevations showing framing details. (NPS-SERO-CRS, 2001)

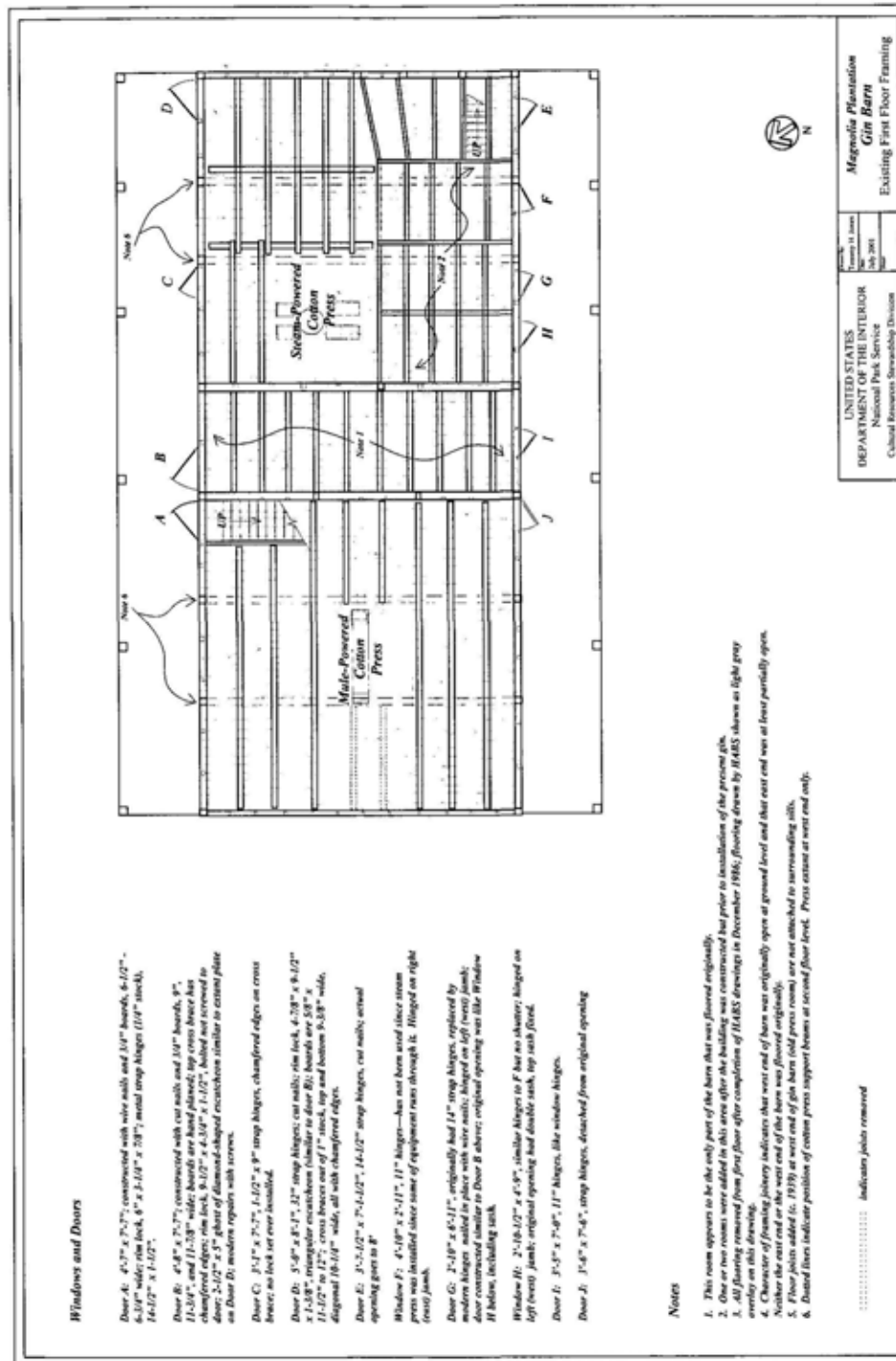
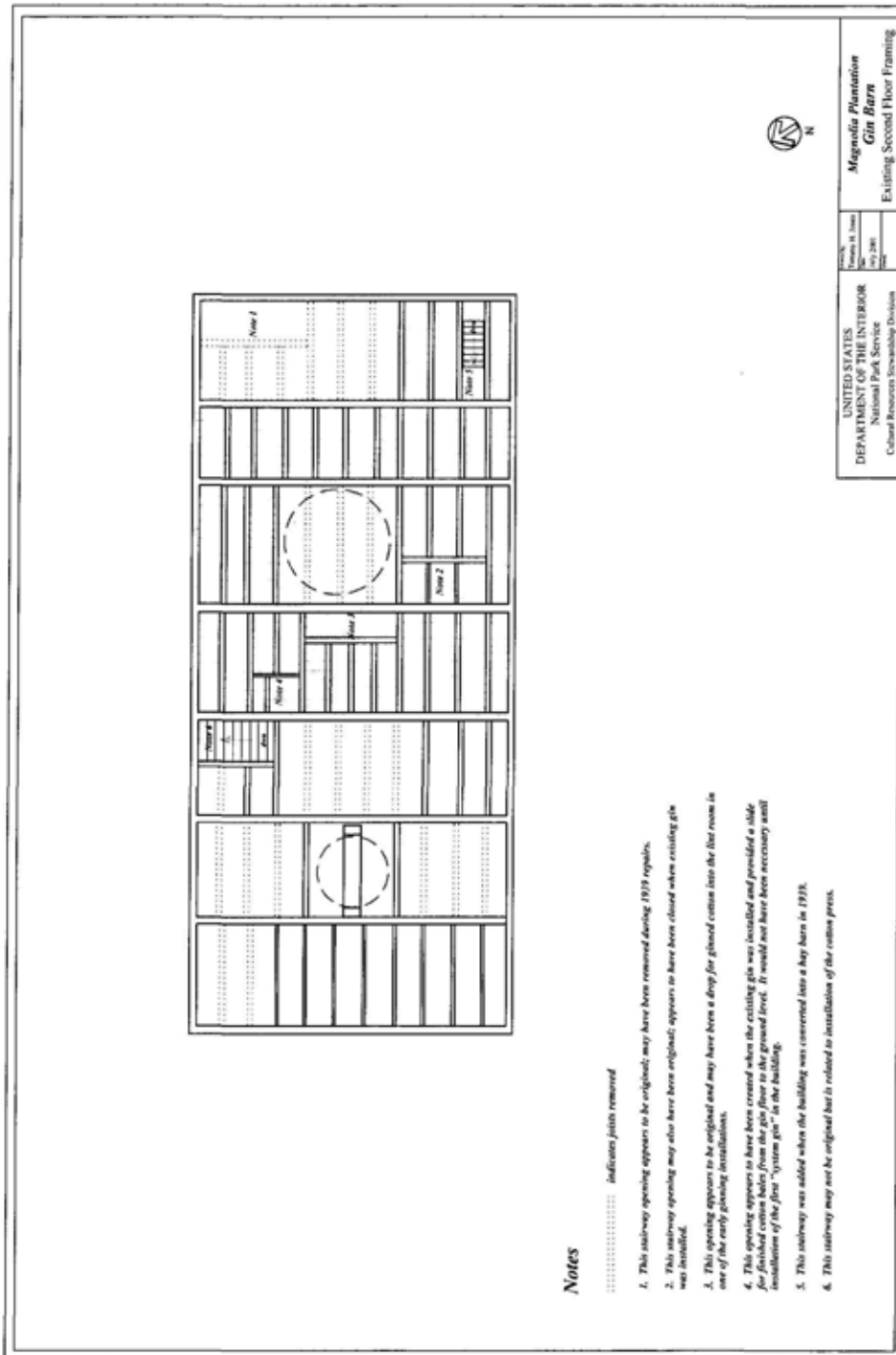


Figure 51 Plan of existing floor framing. (NPS-SERO-CRS, 2001)



**Figure 52** Plan of existing second floor framing. (NPS-SERO-CRS, 2001)

## Physical Description

**PART 2**  
**TREATMENT &**  
**USE**





# Introduction

The Gin Barn at Magnolia Plantation is a large building, occupying a footprint of approximately 38' by 88' or about 3,334 square feet. With two stories and a roof ridge nearly 32' above the ground, the structure dominates the landscape at the southern end of Magnolia Plantation and is the first structure that many visitors see upon arrival. For at least 130 years, the building has been one of the major character-defining elements of the cultural landscape at Magnolia Plantation and is one of the most significant buildings in Cane River National Historical Park. The park's general management plan notes that part of the park's significance is its representation of "a succession of agricultural and labor systems, changing technologies, and evolving social practices over three centuries" and the Gin Barn is a critical part of that picture.<sup>1</sup>

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1. National Park Service, *Cane River Creole National Historical Park General Management Plan and Environmental Impact Statement, Louisiana*, (NPS, January 2001), p. 21.

## Introduction

As pointed out in the GMP, the ginning equipment and the wood- screw cotton press are extremely rare and valuable industrial artifacts. Very few of Munger's system cotton gins have survived, and only part of the Magnolia system remains intact. However, a few system gins have been preserved and even restored to operation, including the ones at Agrirama in Tifton, Georgia; at Old Alabama Town in Montgomery, Alabama; and at the Burton Cotton Gin Museum in Burton, Texas. In March 2000, a restored gin also went on display at the Louisiana State Cotton Museum in Lake Providence, Louisiana. The wood- screw cotton press is rarer still, being one of only six surviving wood- screw presses. The Magnolia press is also one of only two indoor presses and it is the only one that remains completely intact in its original location.

The GMP calls out the cotton gins and the wood- screw press as "the significant resources in the Gin Barn" and designates them as "the focus of interpretation."<sup>2</sup> However, given what has been learned during the course of the present study, the focus might be restated to also clearly recognize the importance of the building itself and its evolution in response to changes in ginning technology. The combination of a gin and a cotton press in the same building in the third quarter of the nineteenth century was a critical advance in the development of plantation gins and the Gin Barn at

2. Cane River GMP, p. 48.

Magnolia is an outstanding example of that type of building.

Unfortunately, significant components of the Magnolia gin complex no longer exist, including the engine house, which was destroyed by a tornado in 1939, and the seed house, which was taken down by the Hertzogs in the 1970s. Repairs to the Gin Barn in 1939, 1982, and 1996 also eliminated much of the evidence for precisely how the Gin Barn was connected to these buildings.

In addition, in 1996, the condition of the roof structure was deemed to be beyond repair and was replaced, which significantly compromised the historic character of the building. At present, the building is not safe for visitors, with all of the flooring missing at ground level and much of it gone from the second floor as well. A recent engineering study has even raised questions about the stability of the structure itself.

This section of the historic structure report is intended to show how a plan for treatment and use of the Gin Barn at Magnolia can be implemented with minimal adverse affect on the historic building while still addressing the problems that exist with the current structure and its proposed use. The first section addresses the ultimate treatment and use as proposed in the park's GMP and is followed by a section that addresses legal requirements and other mandates that circumscribe treatment of the building. With this background, there fol-

## PART 1 DEVELOPMENTAL HISTORY

lows an evaluation of the various treatment options, concluding with a more- detailed description and recommendations for treatment and use.

## Introduction

# Ultimate Treatment & Use

The park's GMP proposes ultimate treatment and use of the Gin Barn for exhibit and interpretation. While visitors to Oakland Plantation would experience more interpreter-led programs and demonstrations about the working plantation, visitors to Magnolia would have “a quieter, more contemplative discovery experience that would be based primarily on the integrity and character of the site's landscape and on interpretive media such as brochures, wayside exhibits, or taped tours.”<sup>3</sup> Some onsite interpretation of ongoing research or preservation projects at Magnolia would occur, gradually phasing out as work is completed. Also, the GMP envisioned that special events would be held at the plantation several times a year.<sup>4</sup> However, unlike the slave quarters, the blacksmith's shop, the pigeonier, and carriage house, which are to be preserved and interpreted from the outside with no visitor access to the interior, the GMP proposes that visitors have controlled access to the Gin Barn in order to see the cotton ginning and press equipment. Wayside exhibits or other suitable media would be used to help interpret cotton processing.<sup>5</sup>

3. Cane River GMP, p. v

4. Cane River GMP, p. 42.

5. Cane River GMP, p. 48.

## Ultimate Treatment & Use

The GMP set preservation of park resources as one of the primary mission goals for Cane River Creole National Historical Park. Equally important is “providing for the visitor's experience of the plantations as a reflection of the continuum of their associated history in a way that allows them to understand the relationship of various plantation features to the broad range of the site's history.”<sup>6</sup> To do this, the GMP identified a number of interpretive themes, three of which are particularly relevant to treatment of the Gin Barn:

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6. Cane River GMP, p. 22.

- the landscapes and structures of Cane River Creole NHP are the result of the adaptations of various peoples to the natural environment, to available technologies, and to each other
- both plantations survived because of the dedication of plantation residents and their ability to respond to changing conditions
- mechanization resulted in an exodus of peoples traditionally associated with Oakland and Magnolia and a way of life was gone forever.<sup>7</sup>

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7. Cane River GMP, p. 23.

# Requirements for Treatment & Use

In the final draft of the Cane River Creole National Historical Park GMP in January 2001, the preferred alternative for NPS management of the park puts an “emphasis . . . on preserving and rehabilitating the landscapes, structures, and artifacts of the two national park units [Oakland and Magnolia Plantations] . . .”<sup>8</sup> The GMP also establishes a conservative approach to treatment of the park’s historic structures which would “reflect the continuum of history up to about 1960.” Such an approach “would result in few changes” to the existing buildings.<sup>9</sup> However, in its response to questions regarding the period of significance in the draft GMP, the NPS also stated that “using a 1960 date . . . does not commit the National Park Service to perpetuating building treatments used during the 1950s that are damaging to the structure.”<sup>10</sup> The final GMP also notes that “contemporary materials, (post-1948) were used to clad some buildings to prolong their use as an alternative to the expense of repairing them” and allows for their removal and repair of “the base structure . . . to preserve the integrity of the scene.”<sup>11</sup>

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8. Cane River GMP, p. 10.

9. Cane River GMP, p. 13.

10. Cane River GMP, p. 5.

11. Cane River GMP, p. 23.

## Requirements for Treatment & Use

Legal mandates and policy directives circumscribe treatment of the Gin Barn. Section 106 of the National Historic Preservation Act (NHPA) mandates that federal agencies, including the NPS, take into account the effects of their actions on properties listed or eligible for listing in the National Register and give the Advisory Council on Historic Preservation a reasonable opportunity to comment. NHPA regulations (36 CFR 800.10) mandate special requirements for protecting National Historic Landmarks. Section 110(f) of the Act requires that the Agency Official, to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to any National Historic Landmark that may be directly and adversely affected by an undertaking. The NPS' Cultural Resources Management Guideline (DO-28) requires planning for the protection of cultural resources "whether or not they relate to the specific authorizing legislation or interpretive programs of the parks in which they lie." The Gin Barn should be understood in its own cultural context and managed in light of its own values so that it may be preserved unimpaired for the enjoyment of present and future generations.<sup>12</sup> To help guide compliance with these statutes and regulations, the Secretary of the Interior has issued Standards for the Treatment of Historic Properties. The National Park Service's Preservation Briefs also provide detailed guidelines for appropriate treatment of a variety of materials, features, and conditions found in historic buildings.

12. "Cultural Resource Management Guidelines," (1997), p. 1

In 1995, Beha and Associates made a brief review of functional and code requirements, based on plans to exhibit the Cotton Gin Barn to the public. According to their report, the following codes would apply:

*Standard Building Code:* The Cotton Gin Barn falls under the jurisdiction of the 1994 edition of the Standard Building Code (SBC). Converting the Barn to a museum will constitute a change in use, though the structure will still be considered a business occupancy. It is believed that the building would qualify as a Special Historic Building due to its listing on the National Register of Historic Places and as part of a National Historic Landmark. As per Chapter 101.6 of the SBC, the extent of compliance required will depend on the judgment by the Building Official as to what is necessary to protect public health and safety. As a minimum, these would include:

- Manual fire extinguishing equipment located throughout the building and as directed by the local fire official.
- Automatic fire warning systems with smoke detectors and an alarm audible throughout the building as well as to a remote monitoring station for periods when the building is unoccupied. Manual pull stations should be provided in the natural path of egress. (Exit signs and emergency lights may not be required if the building is not occupied after daylight hours.
- Determination of floor loading capacities by a structural engineer and periodic review of conditions. Where



necessary, the number of occupants permitted in some areas, such as the second floor, may be limited to the allowable load.

If access is provided to the second floor, Beha recommended that stairs be rebuilt and railings installed which comply with current codes. The impact of any these kind of changes on the historic appearance of the Barn should be carefully weighed against the benefits of providing access to the upper levels. Beha believed that access might not be desirable.

*Americans with Disabilities Act (ADA):* Compliance will be in accordance with the SBC, 1994 Edition and Federal ADA Accessibility Guidelines. The Americans with Disabilities Act requires that "persons with disabilities are to be provided accommodations and access equal to, or similar to, that available to the gen-

eral public." Alterations made to existing public accommodations made after January 1992 are required to comply with this law. With regard to existing buildings, the law requires only that "reasonable accommodation" must be made without "undue burden" and provides consideration for instances in which the owner of a building has made a "good faith effort" to comply with the law. However, these and all other provisions of the law must be tested in the courts.

In the case of a building which is listed on the National Register of Historic Places, such as the Gin Barn, if the owner believes that compliance with the ADA requirements would threaten or destroy its historic significance, then the State Historic Preservation Officer is to be consulted and, if the SHPO agrees, alternative technical provisions are permitted to the specific element so threatened.

Requirements for Treatment & Use

# Alternatives for Treatment & Use

The Gin Barn dominates the landscape at Magnolia Plantation and the park's GMP calls for it to be one of the focal points for exhibit and interpretation. While some of the buildings on the plantation may be rehabilitated and adapted for contemporary needs such as office space, certainly no other use but exhibit and interpretation could be contemplated for the Gin Barn. With its wood-screw cotton press and much of its ginning machinery intact, the building can play a central role in interpretation of the plantation's history in general and of the development of plantation gins in particular.

Two broad alternatives for appropriate treatment of the Gin Barn can be identified: (a) simple preservation of the existing building while making it safe for modern occupancy and use; and (b) restoration to some significant period in the building's past. Restoration is generally defined as the act or process of making alterations to an existing historic building that would return it to an earlier appearance. Restoration focuses on the conservation and repair of materials and features from the most significant time in a property's history while permitting the removal of materials and features from other periods and reproduction or recreation of missing features.

Full restoration of the Gin Barn to its appearance prior to its conversion to a hay barn in 1939 is a compelling option, especially in light of the building's significance as an exceptional example of a plantation gin. Restoration target dates might logically include c. 1870 prior to installation of the steam-powered equipment, c. 1880 when the first steam-powered equipment was installed, or c. 1900 when the building was adapted for the Munger-style system gin that remains partially intact in the present structure. However, either of the earlier targets would necessitate removal of the existing gin stands and steam-powered press, all of which are considered significant industrial artifacts that must be preserved. Since the GMP has also established continuity and adaptation as primary interpretive themes for the park and has specifically targeted the gin and presses for interpretation, restoration of the Gin Barn to any period earlier than c. 1900 does not appear to be a viable option.

Restoration of the Gin Barn to its appearance in the early twentieth century, when the Hertzogs' system gin was in full operation, would include three main components: (1) restoration of the building to its appearance following installation of the present ginning equipment, (2) reconstruction of the engine house, the seed house, and their connections to the Gin Barn, and (3) restoration of the historic wood-screw cotton press and the machinery for the building's Munger-style system gin. Restoration of the machinery and press in the building would not be difficult since the majority of the gin machinery and all of the wood-screw press remain intact;

but the machinery within the Gin Barn is only part of the total ginning complex. Full restoration of the system gin would require reconstruction of those components that no longer exist, including the engine house, which was destroyed by a tornado in 1939, and the seed house, which was taken down by the Hertzogs in the 1970s. A photograph of the tornado-damaged engine house taken shortly before it was removed could support the building's reconstruction if archaeological investigation could determine the building's footprint. Unfortunately, no such documentation exists for the seed house so that, even with archaeological investigation, its features and finishes could only be conjectured. Furthermore, repairs to the Gin Barn in 1939, 1982, and 1996 also eliminated much of the evidence for precisely how the Gin Barn was connected to either of these buildings. Finally, restoration of the entire system gin operation would dramatically alter the landscape at Magnolia, something that was not contemplated by the GMP. Certainly, if it were restored to operation and actually used for demonstrations, the noise produced by the steam engine, hydraulic press, and all of the other machinery would permeate the entire plantation.

Preservation as a treatment option is defined by the Secretary's Standards as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of the historic building, with the treatment aimed at reflecting a building's continuum over time through all of its various changes. Preservation projects focus primarily on conservation,

maintenance and repair rather than extensive replacement and new construction. Limited and sensitive upgrading of mechanical and electrical systems, if present, and other code-required work to make properties functional is appropriate within a preservation project.

The GMP dictates preservation of the historic structures at Cane River NHP as they existed around 1960, the end of the period of significance for both plantations. In essence, this would require preservation of the Gin Barn as it was repaired and altered by the Hertzogs for hay storage after the 1939 tornado. Use of the Gin Barn to store hay for nearly four decades is certainly part of the story of Magnolia, since that use was directly related to the continued maintenance of horses and mules into the 1960s. In order to provide visitor access, treatment of the building under this scenario might include reinstatement of the ground-level flooring, which disappeared primarily after 1960, but not at the second floor, where flooring was removed from the northeast corner of the building in 1939 and from the entire west

end sometime after World War II. The steep, narrow stairs that replaced the historic stairs in the northeast corner of the building would also be repaired; but there would be no effort to restore any of the machinery.

However, the building's primary significance lies in its construction and use as a gin barn and not in its altered state as a hay barn (a use that is not even mentioned in the NHL designation report). The GMP clearly intends the gin and press to be the focus of interpretation, something which cannot be reasonably accomplished while preserving all of the interior features of the post-1939 hay barn. While a strict interpretation of the Secretary's Standards might require repair of the interior of the building to its appearance as a hay barn, since the exterior and the rest of the landscape at Magnolia are being preserved in essentially their present state, such a narrow interpretation of the Standards would seriously diminish the park's ability to interpret the most significant aspects of the building.

## Alternatives for Treatment & Use

# Recommendation for Treatment & Use

The ultimate treatment of the Gin Barn at Magnolia should be to preserve the exterior of the building as it exists today while conserving and restoring the wood- screw cotton press and the gin machinery that remains in place in the building and providing for their interpretation. Changes would be made that are necessary to meet the Park's interpretive goals for the site and to insure continued preservation of the wood- screw press, the ginning machinery, and the building itself.

Clearly, if the building's interpretive value is to be maximized while maintaining the present character of the plantation - - both of which are goals implicit in the GMP - - some compromise approach to treatment of the Gin Barn will be necessary. While the Oakland unit of the park is slated for a variety of ranger- led activities and demonstrations, the GMP outlines a "quieter, more contemplative discovery experience" for visitors to Magnolia, a goal that would not be well- served by any effort to reconstruct the entire gin complex. So as not to interfere with the stated goal of preserving the cultural landscape as it evolved after World War II, the exterior of the building should be preserved in its present state.

Note: A plan of proposed treatment and use is included at the end of this section.

Under this scenario, necessary repairs would be made to the existing fabric of the building's exterior with no effort to replace or

replicate missing features. Except for recreation of a missing door opening at the west end of the building - - primarily to make that space accessible to all visitors - - there would be no changes to the exterior appearance of the building. Interpretive media such as brochures, wayside exhibits, or taped tours could easily allow visitors to understand the entire gin complex, including the engine house, seed house, and other missing elements.

On the other hand, the importance of the gin machinery and the wood-screw press must drive treatment of the interior and it is here that compromises necessary to fulfill the park's goals will be most readily apparent. Repair and replacement of missing flooring in at least part of the building is clearly a necessity under any scenario that provides public access to the building. However, that need not include replacement of the now-missing flooring that was laid across log joists in 1939 and which obscured the base of the cotton press and other aspects of the historic Gin Barn. Replacement of the ground level flooring as it existed prior to 1939, as indicated on the plan at the beginning of this section, would allow visitor access to the building and, at the same time, would help give visitors a clearer understanding of how the building functioned historically.

Visitor access to the east end of the second floor, where most of the gin machinery is located, would be restricted by the steep narrow stairs (1939) that provided access when the building was a hay barn and by the absent floor and joists which were removed at the northeast corner of the building in 1939. The flooring at

the west end of the second floor was a feature of the hay barn but was scavenged for fire wood by tenants prior to the 1980s, making visitor access there impossible. By reconstructing the missing floor and the historic stairs in the northeast corner of the second floor, replacing the missing flooring at the west end, and repairing the floor elsewhere, visitors would be able to view the entire floor, including the gin machinery and the loading deck for the wood-screw cotton press. Handicapped access to the second floor is not practical without the major intrusion of an elevator on the building's historic character. Since the ginning and pressing operation will require substantial interpretation for most visitors anyway, wayside exhibits under the arcades could help give all visitors, including the handicapped, a comprehensive understanding of the building's historic features and function.

As mentioned above, the door opening at the west end of the building (which was closed in the early 1980s) would also be recreated, thereby allowing a grade-level, handicapped-accessible route through that end of the building where visitors could view the wood-screw press. With a ramp to the door at the south side of the lint room, all visitors could have access to view all of the significant features of the first floor.

The key to the success of this project will be the judgement used in determining where replacement of a deteriorated building element is necessary. Deterioration in a portion of an element should not necessitate total replacement of the element, since epoxy consolidants



and fillers can often be used to repair the damaged area, often without even removing the damaged element to make the repair. While total replacement of a damaged element is often recommended in rehabilitation projects, the success of a preservation project can be judged by the amount of historic material that remains. Even “replacement in kind” does not typically address natural processes that give the historic materials an aged appearance that cannot be duplicated except by the passage of time.

*Site Considerations:* A critical need is archaeological investigation that is focused on the gin barn and its ancillary structures. Location of the footprint of the engine house should be possible and, with the family's help, the footprint of the seed house might also be located. Once that is done, the footprints of both buildings could be “ghosted” on the ground, incorporating archaeological remnants as appropriate.

In addition, there should be a comprehensive archaeological investigation of the footprint of the Gin Barn. Properly designed, such a project might help answer some of the many questions that still surround the building, including if there was an earlier building on the site and what was its use; if an animal-powered cotton press or gin was ever operated at the east end of the present building; and how draft animals entered the building. This investigation will have to be conducted prior to any further work on the building since conservation of the wooden press and other parts of the building will require significant ground-disturbing activities.

The brick foundation of the steam engine is in reasonably good condition, although loose elements need to be secured and the structure repointed as necessary to reduce water penetration. The cistern requires a significant amount of repointing to stabilize and preserve the structure. Archaeological investigation of its interior would also be appropriate.

A route should be defined for visitors walking to and from the Gin Barn from the main parking area to the north. Walkways should also be defined around the perimeter of the building as necessary to lead visitors to the doors at the west end and handicapped access on the south side.

Historically, the ground around the Gin Barn complex would not have been grassed. Constant foot and wagon traffic would have insured that much of the area was muddy or dusty, depending on the time of year. As an added protection against accidental fire, vegetation should be eliminated or kept reduced around the perimeter of the building.

- Conduct complete archeological investigation around and within present building.
- Repair and repoint cistern and engine base.
- Define appropriate routing of visitors around building.
- Keep perimeter of building free of vegetation.

## Foundation

When the building was evaluated by Beha and Associates in 1995, the report of their structural engineer stated that “most of the brick piers were in reasonably good condition.”<sup>13</sup> When repairs were made in 1996, however, all of the perimeter piers were completely rebuilt on concrete footings. The few interior piers that remain intact should be preserved without major repairs. Additional piers might be added if necessary to support projected loads. The foundation piers for the hydraulic press are in good condition and should require little if any work.

Once archaeological investigation is complete within the footprint of the building, the portions of the first floor which will be exposed earth will need to be re-graded, as will the area beneath the arcades. The aim is to provide a level surface not hazardous to visitors, but attention must also be given to insuring the rain-water does not collect or run under the building. Archaeology will be necessary to determine the foundation for the wood-screw press and what will be necessary to restore the grade at that end of the barn.

- Preserve existing historic brick piers.
- Add additional piers if necessary to provide adequate support for anticipated loads (see below).
- Repoint historic masonry as necessary.

13. See Appendix E, Silman's engineering report, p. 3.

## Framing

The condition of the building's structure is the most difficult aspect of the building to resolve. In 1995, shortly after acquisition of the building, the NPS contracted with Ann Beha and Associates to conduct a structural inspection and assessment of the Gin Barn. Their report (see Appendix E) included a structural engineering assessment and evaluation of the building by consulting engineers Robert Silman Associates, P.C. That report provided recommendations for stabilization of the building, including a recommendation to defer full repair of the roof “until an HSR has been completed, and the appropriate roofing material for restoration period has been established.”

Beha found few problems with the cypress timbers that compose the building's frame. They remain in sound condition with only very limited areas of rot or termite damage. In addition, Beha found the joists for the second floor have “a very good capability to support the load of visitors.”<sup>14</sup> The first floor framing could not be examined at that time because it was obscured by flooring; but since it is framed with similar material, it, too, should be capable of supporting the load of visitors. If additional support is required, shoring could be easily provided beneath the first floor without changes to the existing framing.

There are isolated areas of damage to the building's sills, nearly all of which can be readily repaired using epoxy consolidants. The sills at the west end and at the north side of the

14. *Ibid.*, Beha report, p. 7.

east end of the building, which were added after the building was constructed, are not well connected to the side sills and that deficiency should be corrected. In doing so, a mechanism for tying the side walls together might be examined. At the west end, a door opening will break the sill (which was actually installed in two sections) near the center of the wall; but the sills could be anchored to the side sills and to new footings, piers and tie-downs on either side of the opening.

Replacement of the entire roof structure in 1996 significantly altered the historic character of the building; and, while there is sufficient documentation to support reconstruction of the original pole-rafter roof, a reconstructed roof would not meet the requirements of modern building codes. "On the other hand," as Robert Silman Associates' structural assessment and evaluation stated in 1995, "except for the termite damage, [the original pole rafters] seem to have behaved perfectly well." Since code compliance would probably prohibit reconstruction of the pole-rafter roof system, the use of substitute materials that would mimic the appearance of wooden pole rafters might be investigated. The Gin Barn rafters might be replicated in metal perhaps encased in fiberglass or other material that would approximate the appearance of the original rafters while providing the structural stability that modern engineering requires.

More difficult to address is a recent engineering analysis by the Denver Service Center (see Appendix F) that raised questions about the stability of the entire structure, something that

was apparently not an issue with the Beha engineers who assessed the structure in 1995. In particular, the DSC report raised the specter of building collapse from strong winds and proposed a radical system of bracing that would irretrievably alter the building's character. With repairs completed in the limited areas where there is rot and termite damage in the building's frame, the building's structure (with the exception of the now rebuilt roof) would be essentially restored to its historic condition, a condition that supported tons of cotton and vibrating machinery and which also withstood tornadic winds on at least one occasion. However, with an HSR complete and a use plan for the structure established, the building should be evaluated again by engineers who specialize in historic buildings and who are particularly familiar with heavy timber framing. Such an evaluation should attempt to provide the NPS with definitive answers to the following:

- how might the pole-rafter roof be reconstructed, using original or substitute materials.
- what is the risk to visitors, the building, and its contents from high winds.
- will repaired flooring systems at both first and second floors adequately support visitors

Modern codes will certainly find that the building is deficient in some areas, even when fully repaired - - very few historic building comply with modern codes. However, the answer is not always restructuring of the building to meet the letter of all codes; to do so is to invariably diminish the structure's historic char-

acter. If collapse under high winds is judged to be a significant risk to visitors, for instance, access to the building could be restricted during stormy weather.

- Repair areas of rot and termite damage in sills and other framing members without replacing any timbers.
- Reframe west end as necessary to provide door opening.
- Secure end sills.
- Engage services of a structural engineer with expertise in preservation of heavy timber construction to conduct structural analysis based upon building's repaired condition and proposed use and to provide recommendations for repairs.
- Consider alterations to program of use to avoid additional major structural intervention in the building.

### Doors and Windows

Some of the present openings in the building are not and will not be used. However, all should be repaired and maintained. Two doors were originally installed on the west wall of the lint room but both are detached from building. These should be reinstalled. Although the nature of the building's construction makes it difficult to secure the building against entry, interior latches can be used to secure all ground-level openings except for the building's primary entrance. Currently the main entrance is through Door B on the north side of the building; but, if the cotton slide were rein-

stated, that door will be blocked against entry. In addition, a handicapped ramp on the north side of the building would be an unnecessary intrusion on the historic setting as visitors approach the site and so should be installed at Door I on the south side of the building, which also can become the main entrance. This door can be secured with a chain and padlock, as is done now, or a surface-mounted rim lock similar to those used historically at Doors A, B, and D might be used.

The dormer and gable-end window openings were historically closed only by wooden shutters. These should be repaired as necessary and preserved. On the south side of the building, the shutters at openings G and H, which were originally fitted with glazed sash, should remain open when the building is being viewed. A third window opening (F) that is penetrated by the drive shaft will remain with its shutter fixed in place.

- Repair interior and exterior doors as necessary and install appropriate latches.
- Repair all shutters as necessary and provide necessary interior latching mechanism.

### Arcades

The arcade roofs were completely rebuilt in 1996, but some of the 1939 posts and headers on the south side of the building were preserved. After archeological investigation, the ground beneath both arcades should be graded to in-

sure proper drainage and a safe route for visitors.

- Continue to preserve existing posts and headers on south side of building.
- Insure proper grade under arcades after completion of archeological investigation.

### Wood Siding

The end walls and dormers were originally sided with lap siding. All or most of the siding on the end walls was replaced in the early 1980s; the dormer siding appears to be original. Some of this siding needs to be re-secured; in general, it remains in good condition. Careful attention should be given to preserving those portions of siding that are original, which are generally indicated by the use of cut nails for fasteners.

Except at the ends of the lint room and the wall that formed the south side of the seed room (in the vicinity of the two windows noted above), the sides of the building beneath the arcades were covered with siding that was not lapped but, rather, spaced so as to provide good ventilation to the interior of the building. That siding is installed on the exterior of the building's frame. Since the lint room and seed room of necessity needed to be secured against animal entry, those walls were boarded from the interior without spacing between the boards. Any necessary repairs should maintain this distinction.

- Repair siding as necessary, maintaining lapped siding on ends and on dormers, spaced slat siding on the sides, and solid board walls in the lint and seed rooms.

### Interior

Flooring is almost entirely missing from the first floor, except for remnants beneath the wall at the south end of the lint room. Flooring would not be replaced around the cotton press since that would obscure part of the box and would also make it more difficult to monitor the press' condition. The existing joists should be removed, at least in part, in order to provide visitor access around the press. Flooring should also not be replaced on the north side of the east end of the building, although since visitors will not be entering that area the log joists added in 1939 might remain in place. Flooring should be replaced (after repair of the framing) in the lint room and at the east end as indicated by the proposed use plan (see above).

At the second level, flooring is largely present at the east end of the building but entirely missing at the west end. The missing section of floor in the northeast corner of the building should be re-framed and re-floored. The opening for the cotton slide might be re-instated, although that might present a hazard for visitors. Alternatively, its location could simply be marked and interpreted for visitors. Missing joists and flooring should also be replaced at the west end of the building. The surviving flooring at the second level should be carefully repaired and

preserved. If after limited repairs it is judged inadequate for visitor loads, additional flooring might be installed in the form of a walkway that could provide a safe route for visitors.

The south end of the east wall of the lint room and the wall separating the two levels of the second floor have been removed, probably in 1939. Reconstruction of these walls to match the remaining walls might help visitors more readily understand the building's historic functions. Detached but surviving doors and other missing material on the west wall of the lint room should also be reinstated. The south wall of what was formerly the seed room remains mostly intact but may need minor repairs.

In order to provide for safe visitor viewing, a simple railing must be installed around the exposed perimeter of the floor on the south side of the building at the former seed room location. If the wall separating the second floor is not reconstructed, a similar railing will be necessary there as well. These should be designed and installed simply, using 2 x 4s or other utilitarian material. Finally, the deteriorated stairway (1939) in the southeast corner of the building could be repaired; but since the stair opening at the second floor might present an additional hazard to visitors, the opening should be closed.

- Replace all missing framing and flooring at second level; replace missing flooring in lint room and on south side of east end of first floor as indicated on plan.

- At the second floor, preserve all existing flooring, adding flooring on top of the historic material if necessary to provide a safe route for visitors.
- Rebuild part of east wall of lint room; repair remainder of walls in lint and seed rooms.
- Rebuild wall on second floor above west wall of lint room or install railing at that location.
- Install railing around perimeter of former seed room floor.
- Reconstruct historic stairs at northeast corner of building; remove stairs at southeast corner of building.

### Electrical System and Lighting

If the building is to be exhibited in an authentic way, there should be no artificial lighting; and, since the building would not be exhibited at night, lighting should not be an issue. Simply opening window shutters on the south side of the former seed room will dramatically increase the light in that area, which is the most dimly-lit part of the building. Opening shutters when the building is being shown would provide adequate light for viewing except perhaps on the most overcast days in the winter. If additional lighting is deemed absolutely necessary to illuminate machinery, for example, it should be designed to be concealed and installed in the most unobtrusive manner possible. Track lighting, as has been proposed for the lint room, should not be used.

- Consider exhibiting the building using only natural light.
- If necessary, design concealed lighting to illuminate poorly-lit areas of the building.

### Fire Protection

The most likely cause of loss to the building is fire, with three possible causes apparent: lightning, grass fires, and arson. To protect against lightning, a lightning rod system should be installed on the building. To protect against grass fires, the ground in the immediate vicinity of the building should be kept clear of vegetation as it would have been historically. Arson is the most difficult threat to address and the only means to do that is a sprinkler system.

- Install lightning rods on the building.
- Install a comprehensive system of fire and smoke detectors and a complete sprinkler system.
- Keep ground clear of vegetation or keep grass closely mowed within an area of about twenty feet around the perimeter of the building.

### Handicapped Accessibility

The site and the building are not currently accessible. An accessible path from the visitor parking area should be provided. Location of the parking and the materials for the walk must be carefully studied to minimize impact on the historic setting. The first floor around the cotton press will be accessible at grade, but a ramp

will be required for access to the remainder of the first floor through Door I.

The second floor is not accessible, and construction of an elevator would threaten the historic character of the building. If NPS proposes to interpret the upper level, it is imperative that alternate means of interpretation for disabled visitors be negotiated as provided by ADA. Since the entire complex will require a significant amount of interpretation in terms of wayside exhibits, audio tapes, and other media, these could be designed to accommodate handicapped visitors, including the visually impaired.

- Design handicapped-accessible route to and around building.
- Install ramp to door I.
- Design alternate means of interpreting second floor for handicapped visitors.

### Cotton Gin

In its current condition, partially disassembled and with some components of the overall system no longer in existence, the system cotton gin with its hydraulic press can offer visitors scant understanding of the nature of the ginning operation. The missing elements of the system that were outside the Gin Barn itself-- the engine house and the seed house-- will be interpreted through wayside exhibits or other means before visitors enter the building. On the interior, the machinery should be conserved (not restored) and reassembled, guided by the HAER report, metals and wood conservators, and someone familiar with the configu-

ration of early twentieth-century gins.<sup>15</sup> The belts that drove the machinery are missing as is much of the ductwork, including the “suckers” that moved the cotton to the second floor ginning machinery from wagons under the north arcade and the duct that moved seed out of the building through the south arcade. Some of these elements might be recreated or they might be only “ghosted”; those decisions should be made as part of an overall exhibit design for the building. The Eagle gin, which was replaced by the existing gin but remains in the building, should also be conserved and exhibited appropriately.

- Engage conservators and specialist in early twentieth-century gins to guide conservation, re-assembly, and display of existing gin machinery, including the old Eagle gin.
- As part of overall exhibit design for the building, determine how much recreation of missing ductwork, drive shaft belts, and other missing components is necessary for good interpretation of the ginning and pressing operation.

### Cotton Press

Considering that it has been almost totally neglected for more than sixty years, the wood-screw cotton press remains in remarkably good condition, except for some termite damage at the base of the main supports and a broken loading deck at the second floor. Although full

treatment recommendations for the press are outside the scope of this report, some guidelines for treatment can be established. First, and most importantly, the press is far too rare an artifact to risk further damage and wear by restoring it to operation. Resources would be better spent in constructing a working scale model of the press that could be used to demonstrate its operation to visitors. Second, as with any museum object, the highest priority is preservation of the artifact itself. The press is almost completely handmade and the high quality of its craftsmanship is one of its most significant features. The press needs conservation to arrest deterioration and to insure structural stability; but that should never include removal and replacement of any portion of the existing artifact. The craftsmanship of the press would also be diminished by disassembly since the Magnolia press is the only one of the surviving wood-screw presses that remains intact as it was originally constructed.

To insure preservation of this highly-significant artifact, the park should engage the services of a professional conservator who specializes in conservation of wooden objects to assess the press' condition and guide further treatment.<sup>16</sup> As part of the archaeological investigation that is required in the Gin Barn, the character and condition of the press' foundation should be investigated. Some excavation will be necessary around the press to insure

15. Tommy Brown, formerly with the Continental Gin Company, is one noted authority on cotton gins.

16. Alan Levitan, conservator of wooden objects at the NPS' Harpers Ferry Center, is familiar with the Magnolia press and could offer the guidance that will be necessary to insure the press' preservation.



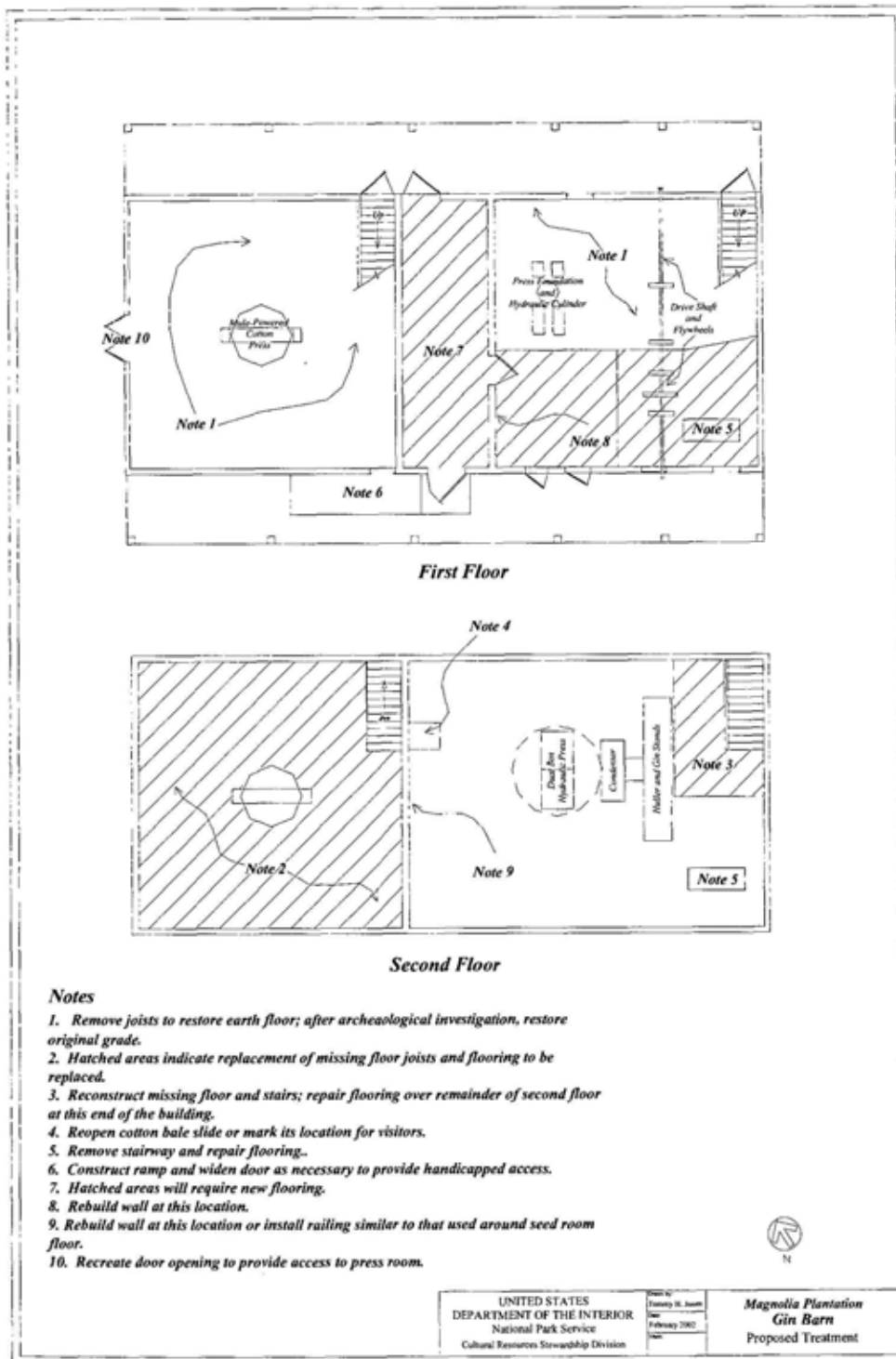
that there is no wood- to- ground contact that could invite further termite infestation. The building has been treated and it is believed that there is no active infestation; but regular inspection will be necessary to insure that there is no recurrence of termite damage. If it is found that the base of the press has lost structural integrity (which does not seem to be the case), the weak areas might be braced with modern materials; but, as noted above, the historic materials should never be replaced.

- Engage services of conservator specializing in large wooden objects to

assess press' condition and guide its treatment.

- Determine character and condition of press footing through archaeological investigation.
- Brace press with modern materials if necessary to insure structural stability.
- Avoid any disassembly or replacement of historic materials.
- Do not operate historic press; construct working scale model to demonstrate its operation to visitors.

## Recommendation for Treatment & Use



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
National Park Service  
Cultural Resources Stewardship Division

Project #:  
Inventory 92, South  
Date:  
February 2002

Magnolia Plantation  
Gin Barn  
Proposed Treatment



# **REFERENCE & APPENDICES**



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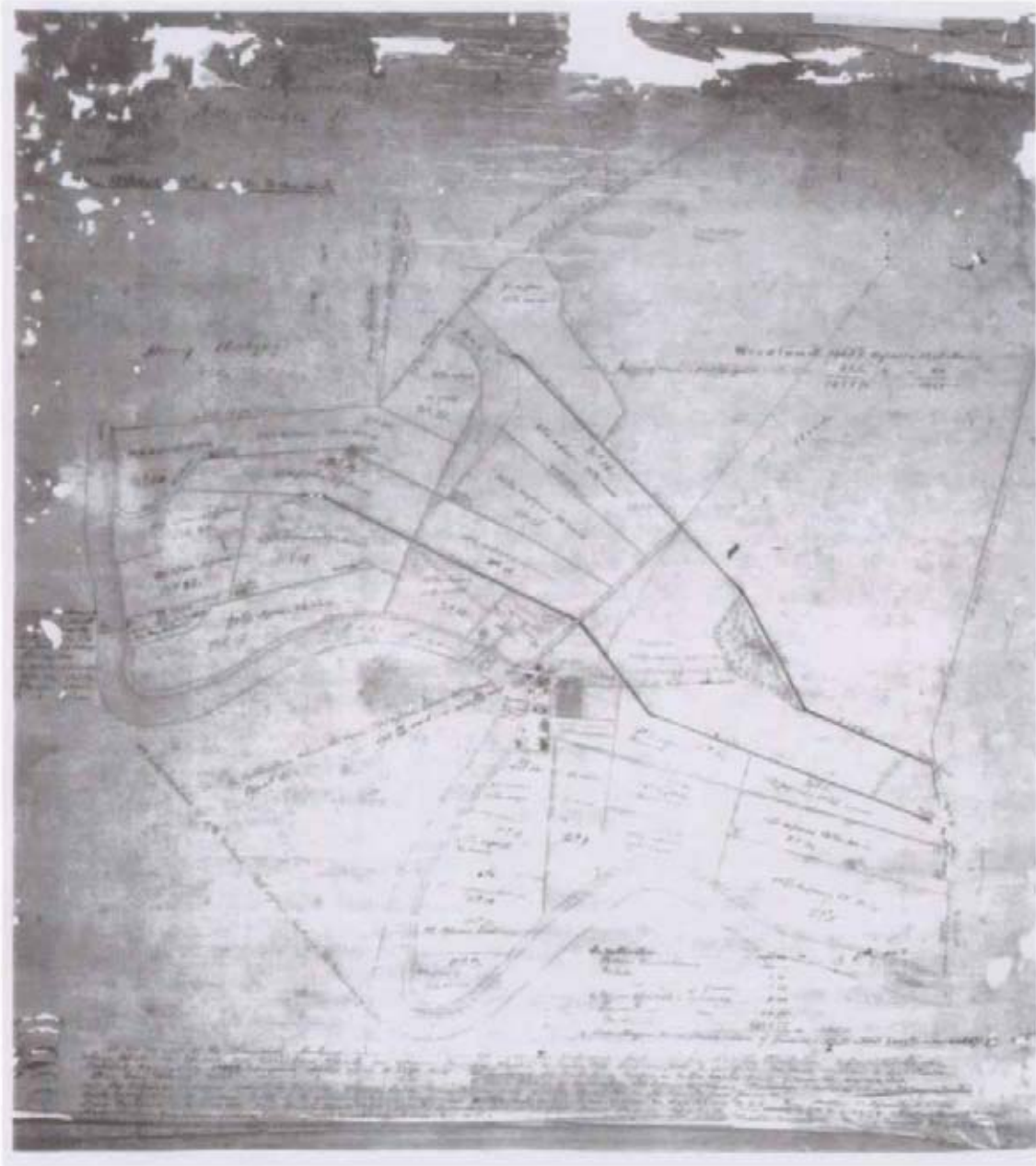
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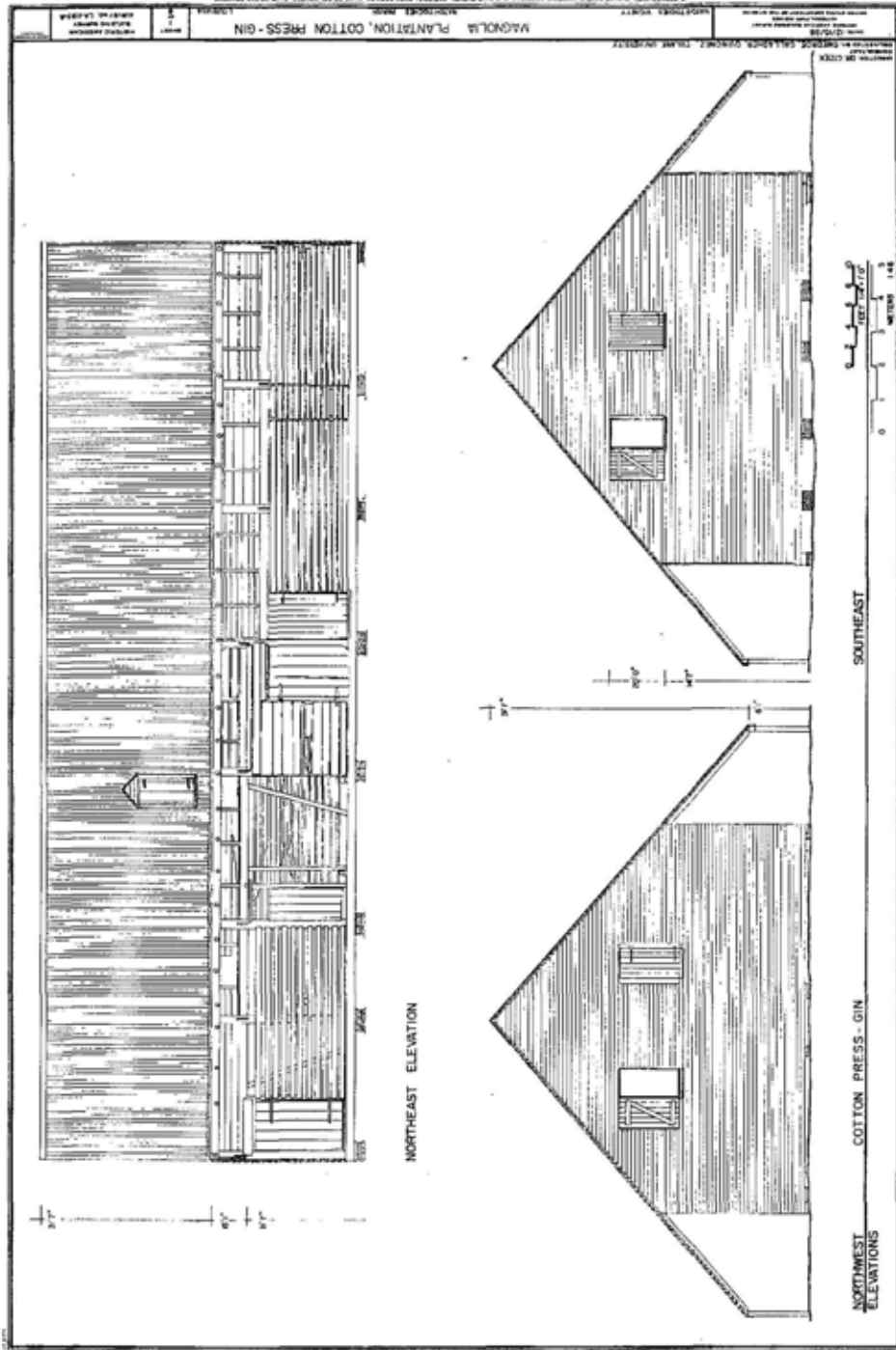
# Magnolia Plat 1858

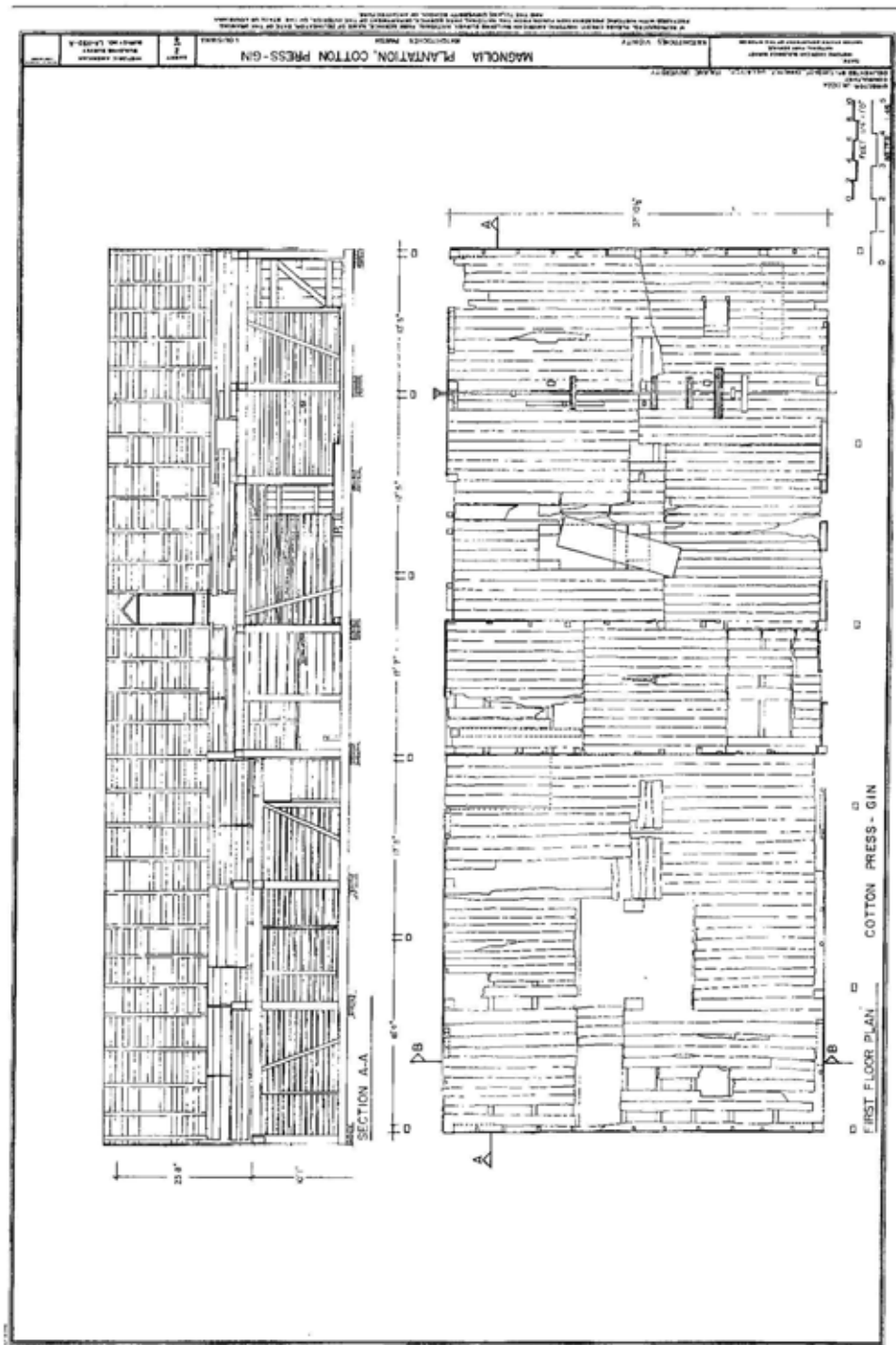
Magnolia Plat, 1858

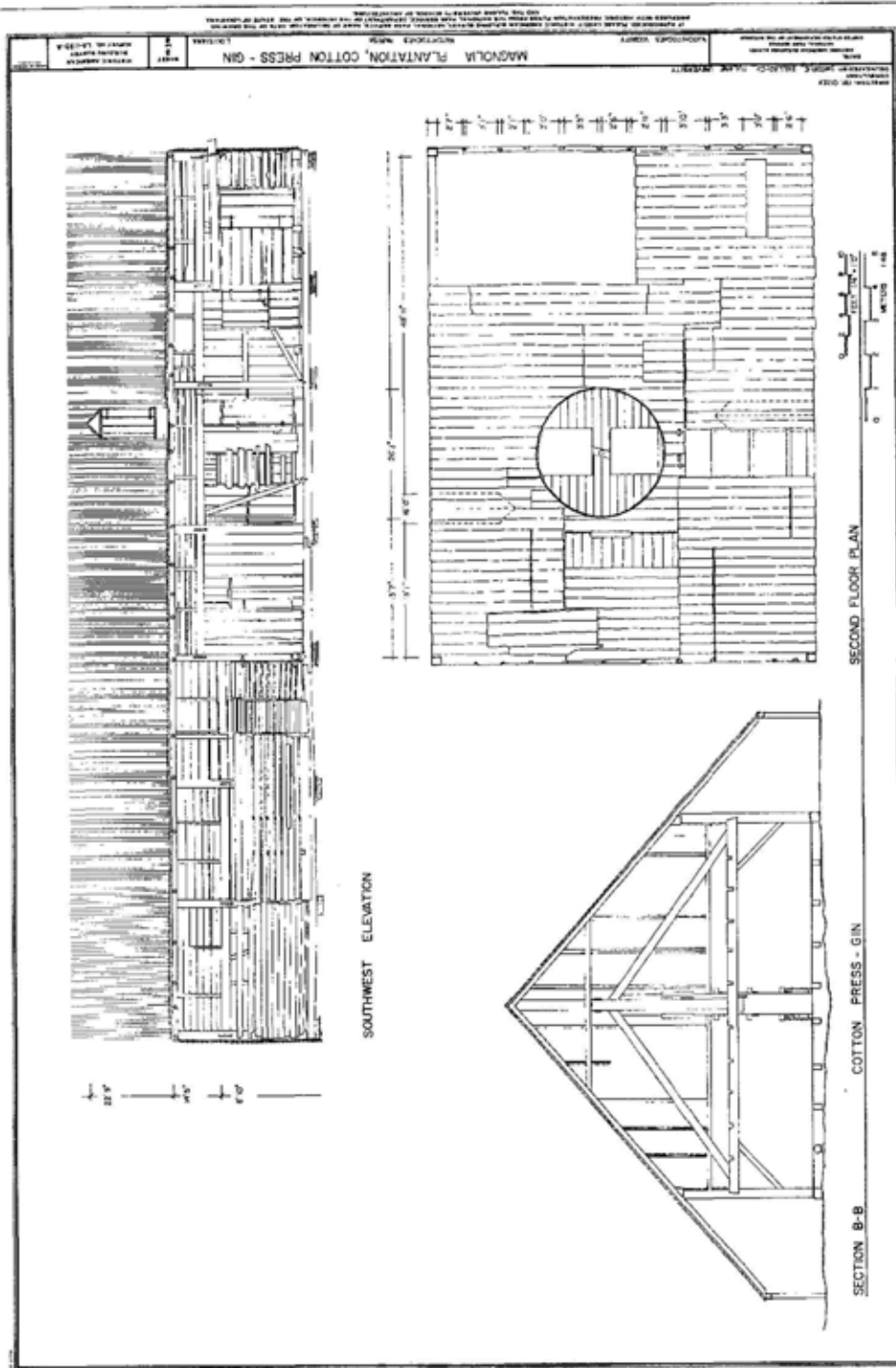




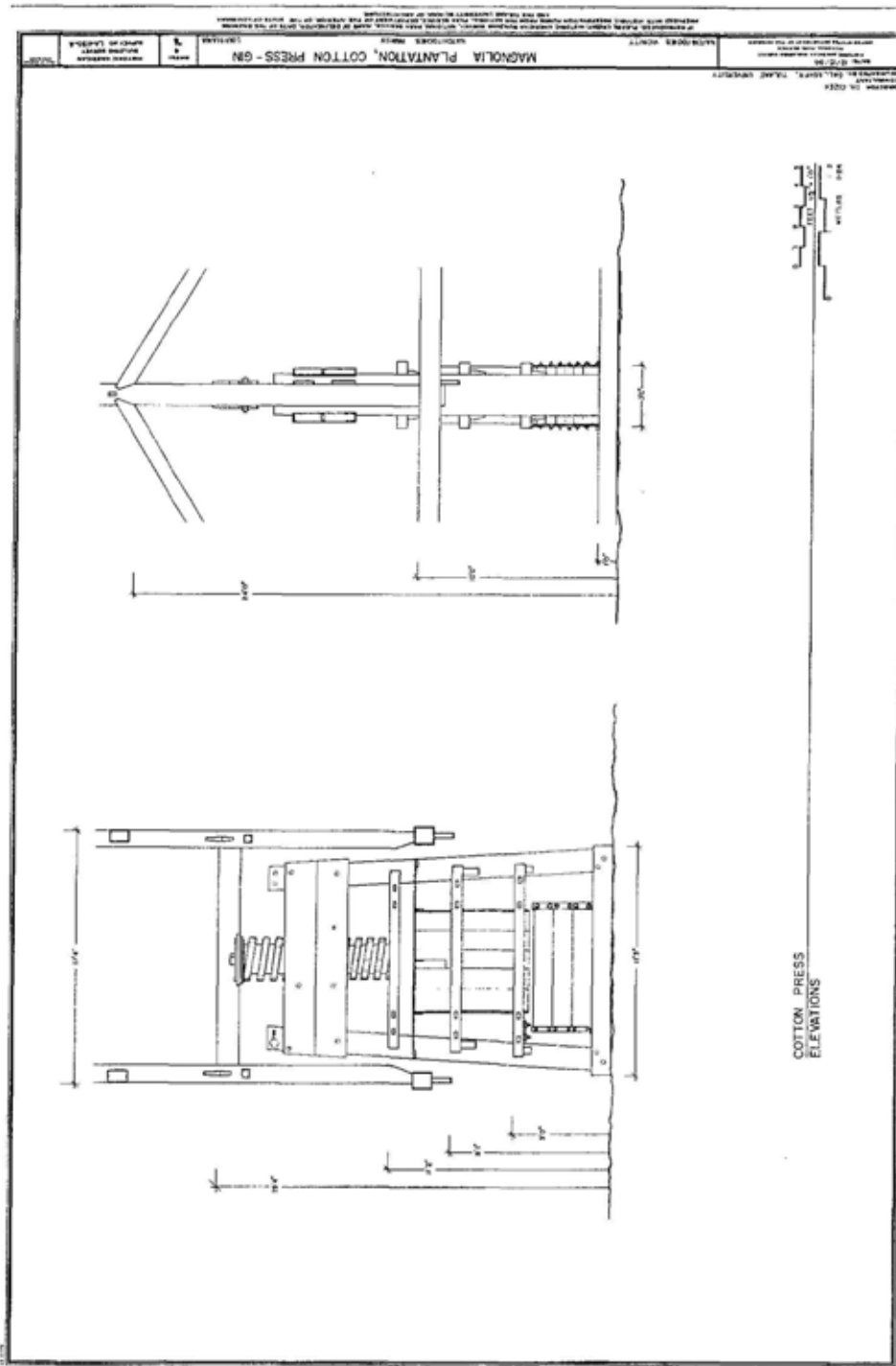
# Historic American Building Survey (HABS)



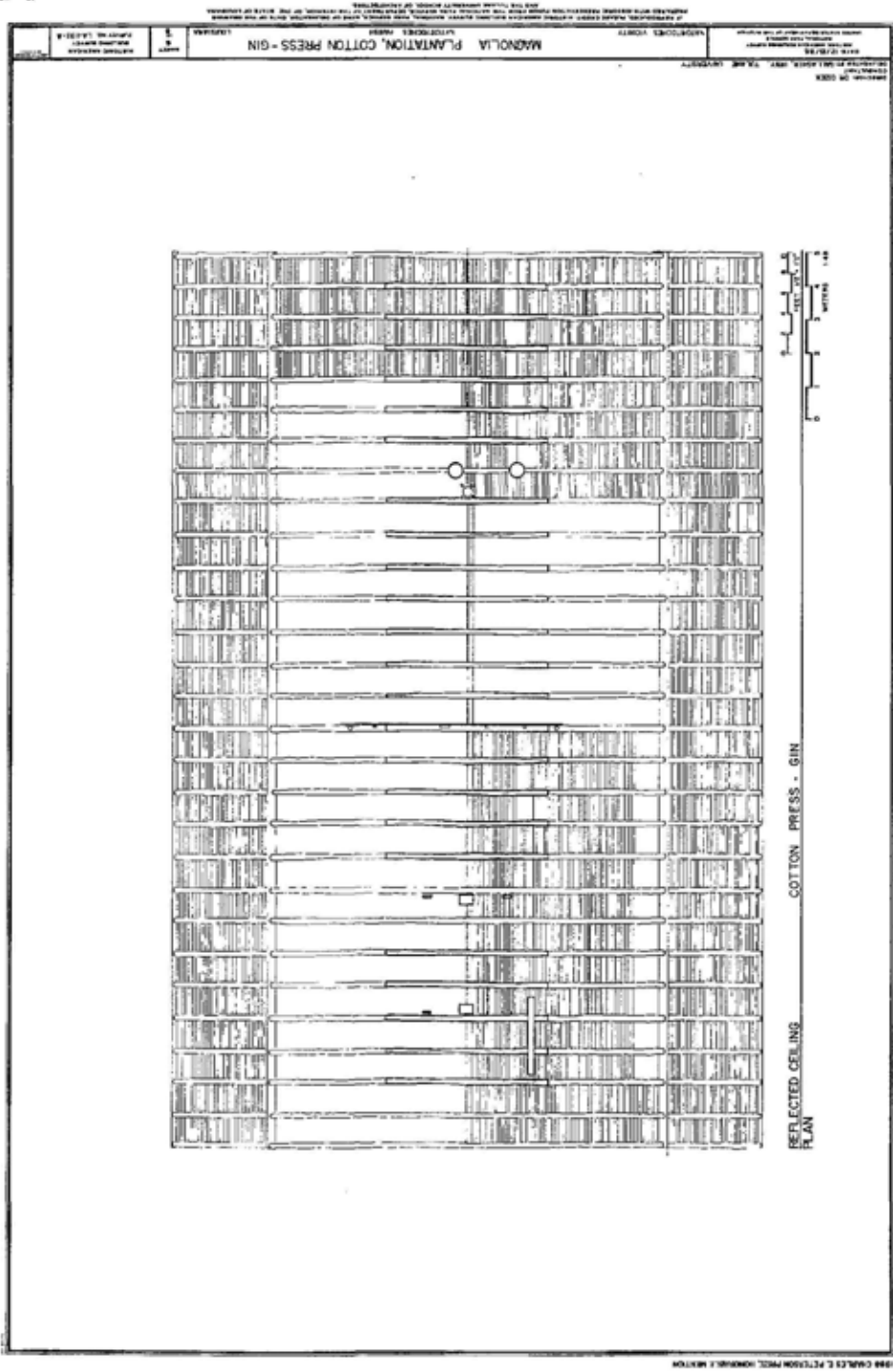




APPENDICES



# Historic American Buildings Survey



# Historic American Engineering Record (HAER)

# MAGNOLIA PLANTATION COTTON GINS & PRESSES NATCHITOCHES VICINITY, LOUISIANA



Magnolia ceased ginning and baling operations at that time, instead moving cotton to a commercial gin for processing.

Documentation of the Magnolia gins and presses was carried out by Thomas Bahans and Christopher H. Martson, architects, and Richard O'Conner, historian, of the Historic American Engineering Record (HAER), National Park Service (NPS). John Nixley, of the Institute for the History of Technology and Industrial Archeology, West Virginia University, served as the principal archaeologist. Other participants included the author, archaeologist and writer, Walter Stewart Johnson, program manager, and Ali Nail, historical architect, and the Game Warden, Creole National Historical Park, Randy Clement, superintendent.

HAER documentation of the Magnolia gin barn continues HAER/HAER documentation of the Magnolia plantation completed by students at Tulane University in 1986. Developed as a part of the project, the following houses (HAER No. LA-1193) Cotton Press-Gin Barn (HAER No. LA-1193-A), Store Quarters (HAER No. LA-1193-B), Overseer's House (HAER No. LA-1193-C), Blacksmith Shop (HAER No. LA-1193-D), Fattening Pen and Pigeonhouse (HAER No. LA-1193-E), Privy (HAER No. LA-1193-F), Cain Crib (HAER No. LA-1193-G), and the Magnolia Store (HAER No. LA-1193-H).



The Magnolia Gin House, 1978. From a photo by Dr. Christopher H. Martson.



MAGNOLIA PLANTATION  
UTM: 15 89088 319030  
Characteristic Curve:  
7.5 min. series



The Magnolia Plantation, on the Cane River, was among the largest cotton producers in Natchitoches Parish. Ambrose Leconte II founded the plantation, coming over from Abbeville, South Carolina in 1839. The plantation produced cotton weighing approximately 450 pounds each. The Civil War considerably reduced acreage and cotton output; in 1865, the plantation turned out only 163 bales.

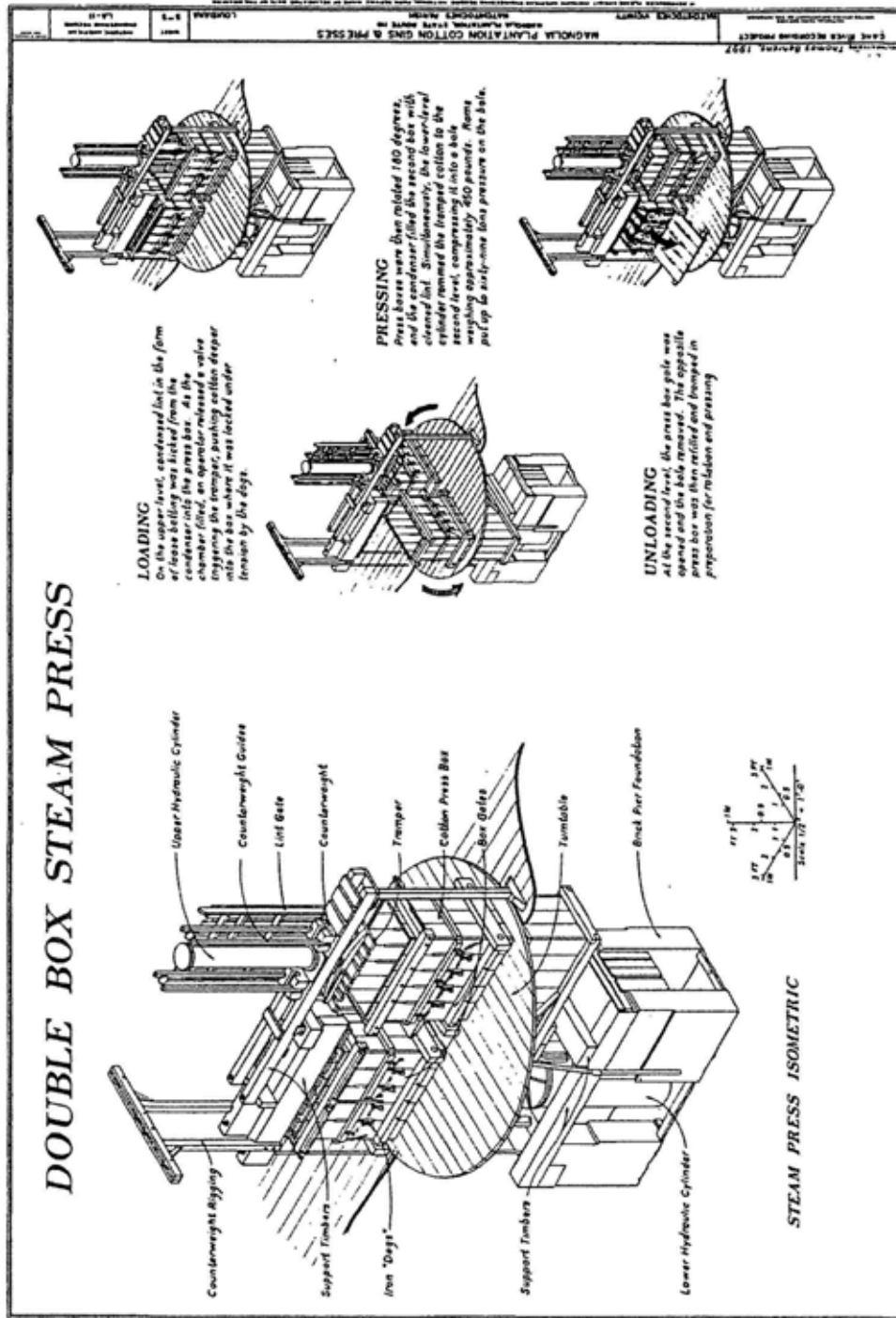
A gin house was one of many structures on the plantation in addition to the plantation house, built in 1849 and rebuilt in 1895. The site contained a smaller flater adapted for use as a blacksmith shop, a blacksmith shop, a blacksmith shop, a variety of tools, a flour, a pigeonhouse, and other buildings. From its earliest years, Magnolia likely processed its own cotton. Although no gins remain from the antebellum era, a wood screw press that formed lint into bales, possibly dating from the antebellum era, still stands in the front part of the gin house. By the 1860s, the gin house contained steam-powered, roller-type gins, and probably also contained equipment, and probably processed cotton for neighboring farms as well.

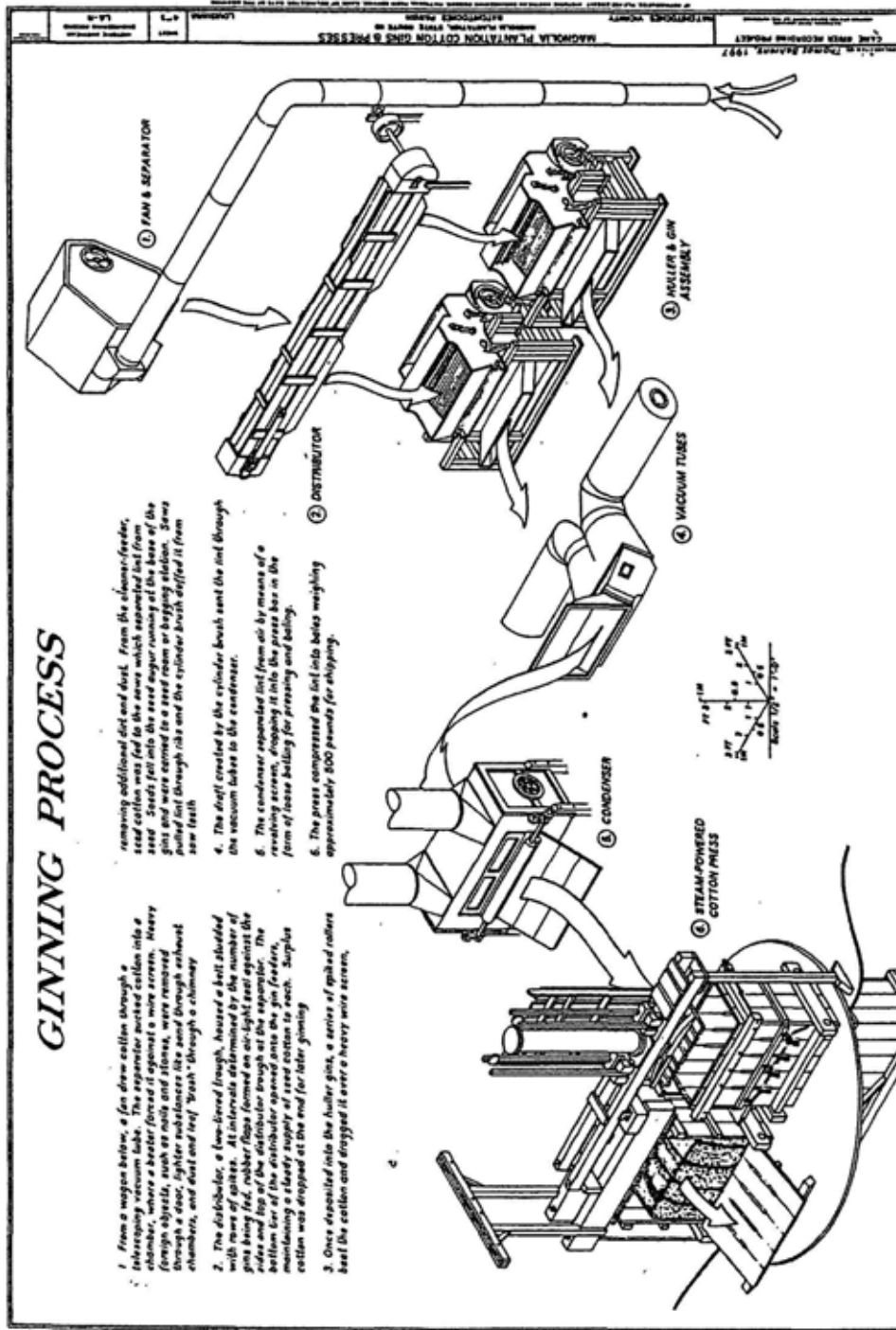
In 1939, a tornado ripped through the region, damaging the gin house and destroying the shed housing the steam engine.



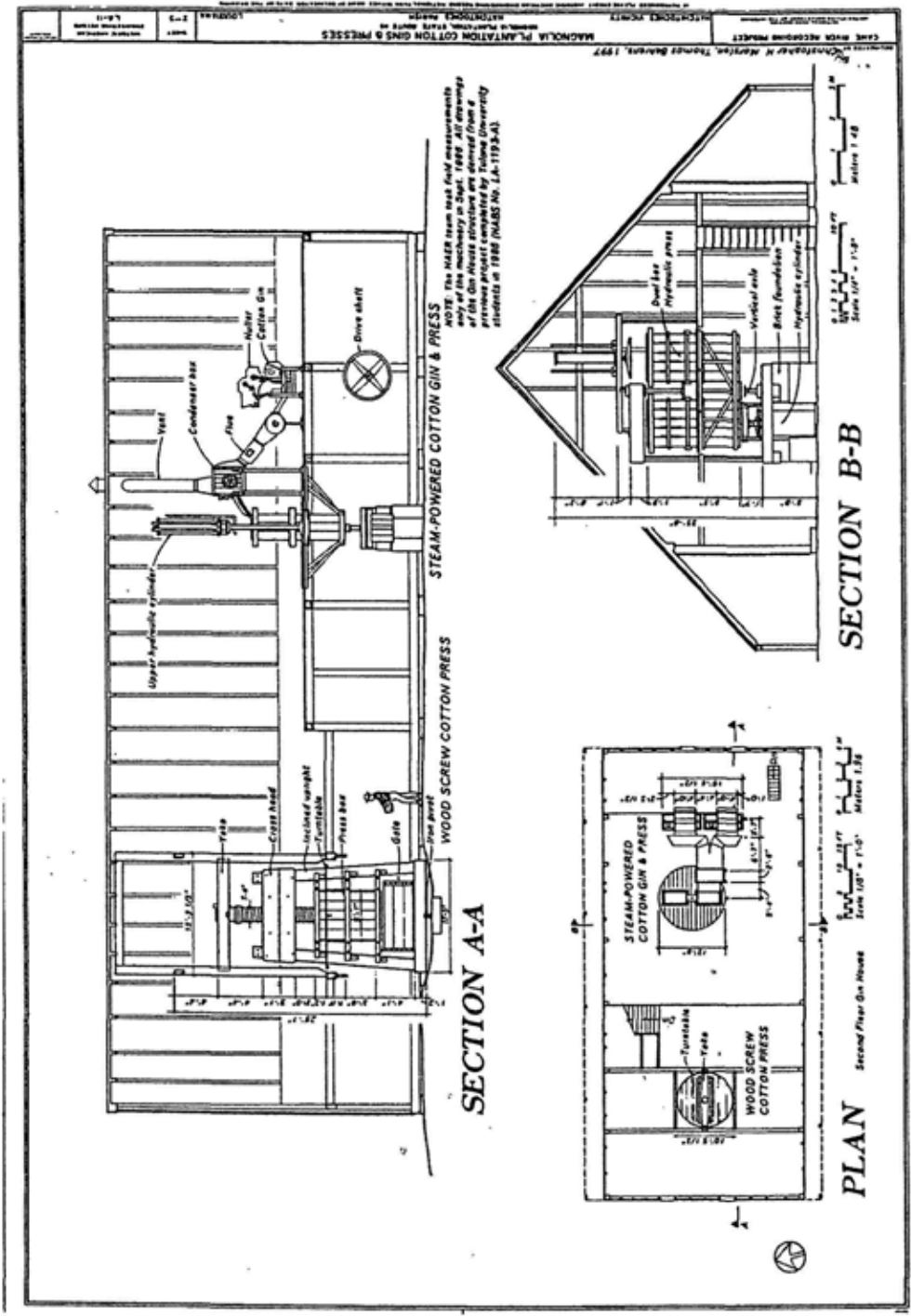
CANE RIVER PLANTATIONS











HISTORIC AMERICAN ENGINEERING RECORD  
MAGNOLIA PLANTATION COTTON GINS AND PRESSES

HAER No. LA-11

**Location:** Magnolia Plantation, State Route 119, Natchitoches vicinity,  
Natchitoches Parish, Louisiana, 71421

UTM: 15.930558.3490080  
Cloutierville Quad, 7.5 min series

**Date of Construction:** c. 1830s - 1900s

**Fabricator:** Ambrose Lecompte II and heirs

**Present Owner:** National Park Service

**Present Use:** Historic site

**Significance:** The Magnolia plantation gin house contains one of only two known examples of an enclosed, wood-screw cotton press. The press is constructed of massive cypress timbers and is structurally integrated into the frame of the building. In addition, the gin house also contains a two-gin stand, a mechanical distributor, separator, condenser and dual-box hydraulic press, examples of some of the most significant technologies shaping southern cotton production in the late nineteenth and early twentieth centuries.

**Project Information:** Documentation of the Magnolia gins and presses was carried out by Thomas Behrens and Christopher H. Marston, architects, and Richard O'Connor, historian, of the Historic American Engineering Record, National Park Service (NPS), and John Nicely, of the Institute for the History of Technology and Industrial Archaeology, West Virginia University, photographer. It was cosponsored by the Southeast System Support Office, NPS, under Stuart Johnson, program manager, and Ali Miri, historical architect, and the Cane River Creole National Historical Park, Randy Clement, Superintendent.

MAGNOLIA PLANTATION COTTON GINS AND PRESSES  
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**Introduction<sup>1</sup>**

In his seminal work on the history of southern agriculture, Lewis Cecil Gray argued that "(t)he principal outlines of the Cotton Belt were formed in the twenty-five years from 1815 to 1840...." In large measure, the growth in cotton production was the result of demand spurred by British and New England textile industries. To "the states of the Lower South," historian John Moore contends, "this phase of the Industrial Revolution represented virtually unlimited demand for their cotton fiber during all but a few exceptional years of war or depression." As cotton prices nearly doubled following the War of 1812, settlers moved southwest in large numbers from the original plantation areas of the southeastern seaboard. In the Natchitoches, Louisiana region north of Alexandria, the availability of cheap land encouraged rapid development after 1819. Moreover, natural advantages--fertile soil and low production costs-- may have insulated the region from the economic fluctuations of the cotton markets in the 1820s, and helped it exploit the speculative boom of the 1830s.<sup>2</sup>

The Magnolia Plantation, on the Cane River, was among the largest cotton producers in Natchitoches Parish. Ambrose Lecomte II founded the plantation, comprising over 7800 acres, in the 1830s, and by 1859 produced over 1100 bales of cotton. Destruction during the Civil War considerably reduced acreage and cotton output: in 1869, the plantation turned out only 163 bales of cotton. In addition to the plantation house, built in 1849 and rebuilt in 1899, the site contained a gin house, an overseer's house (later adapted to use as a plantation medical facility), slave quarters later occupied by sharecroppers, a blacksmith shop still holding a forge and a variety of tools, a pigeonnier, and a store.<sup>3</sup>

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<sup>1</sup>The following report focuses primarily on the cotton ginning and pressing equipment at Magnolia, setting it in the broadest context of nineteenth and early twentieth century cotton production. More accurate interpretation of the Magnolia experience and the nuances of northwestern Louisiana cotton culture await more detailed studies carried out using local sources.

<sup>2</sup>Lewis C. Gray, *History of Agriculture in the Southern United States to 1860*. 2 vols. (Washington, DC: Carnegie Institution of Washington, 1939). Vol II, p. 894; John Hebron Moore, *The Emergence of the Cotton Kingdom in the Old Southwest: Mississippi, 1770-1860*. (Baton Rouge, LA: Louisiana State University Press, 1988), p. 14. Development as far north as Shreveport was stunted by a large raft in the Red River that obstructed navigation until 1833.

<sup>3</sup>By the 1820s, "(g)inning began to have its own terminology. 'Gin plant' or 'gin house' referred to the building, 'gin stand,' to the machine, and 'ginning,' to both the separation of the seeds from the fibers and the entire process of turning out a finished bale." Karen Gerhardt Britton, *Bale o' Cotton* (College Station, Texas: Texas A&M University Press, 1992), p. 24; National Register Nomination, continuation sheet 1, item number 7, page 2.

## MAGNOLIA PLANTATION COTTON GINS AND PRESSES

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From its earliest years, Magnolia likely processed its own cotton. It is not surprising that no gins remain at the site from the antebellum era since, according to John Hebron Moore, one of the most astute students of antebellum cotton culture, gins of that era "wore out rapidly, rarely lasting more than two or three seasons," in large part because of lack of satisfactory lubricants.<sup>4</sup> A wood screw press that formed lint into bales still stands in the front part of the gin house. By the turn-of-the-century, the gin house contained hydraulic-powered, state-of-the-art ginning and pressing equipment used to process cotton from Magnolia and, possibly, neighboring farms. In 1939, a tornado ripped through the region, damaging the gin house and destroying the shed housing the hydraulic engine. Magnolia ceased ginning and baling operations at that time, instead sending cotton to a commercial gin for processing.

## Cotton

Since early in the nineteenth century, the region has enjoyed a reputation for high-quality cotton. By the 1830s, planters throughout the south had adopted "Petit Gulf," a hybrid of Mexican seed, Siamese black seed, and Georgia green seed cottons that was impervious to rot and produced numerous large bolls of long, high quality staple. Cotton raised in Louisiana outside the Mississippi River valley was classified as "gulf cotton." Stronger than typical Atlantic varieties, gulf cotton also had a long staple, 1" to 1-1/8", a result of richer soils and a more humid climate. Particularly valuable was cotton raised along rivers, such as the Red River and the Cane River; often labeled "canebreak cotton," it was grown in the "bottoms" in the rich alluvial soils "enriched by the annual overflow of the rivers."<sup>5</sup>

Throughout the nineteenth and early twentieth centuries, cotton producers devoted extensive resources to field preparation, planting, cultivating and picking. Under the plantation regime and extending into Reconstruction, labor was organized in gangs. "Thus," wrote contemporary Thomas Knox, "we had 'the picking-gang,' 'the trash-gang,' 'the hoe-gang,' 'the planting-gang,' 'the plow-gang,' and so on through the list," including a gin-gang and press-gang.<sup>6</sup> Fields were plowed and raked to ready the soil for seed, which was planted in trenches created by yet another plow and then covered over. When seedlings appeared, rows were "barred off" using turning plows that created drainage ditches alongside, reversing this process, called "molding," several

<sup>4</sup>Moore, *Emergence*, p. 63.

<sup>5</sup>W. Hustace Hubbard. *Cotton and the Cotton Market*. (NY: D. Appleton and Company, 1928), pp. 6-8; Moore, *Emergence*, 11-14.

<sup>6</sup>Thomas Wallace Knox, *Campfire and Cotton Field: Southern Adventure in Time of War, Life with the Union Armies and Residence on a Louisiana Plantation*. (New York: Blelock and Co., 1865), pp. 382-3.

MAGNOLIA PLANTATION COTTON GINS AND PRESSES  
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weeks later, gangs plowed extra soil onto the plants to give them additional room to grow and keep down unwanted vegetation. Rows were thinned during the growing season, until plants were approximately 2' - 3' apart. By the 1840s, shovel plows were used to break the soil around the plants, opening "the way for a new system of shallow culture of cotton that soon proved to be much more effective than the original relatively deep cultivation with turning plows."<sup>7</sup> By the 1850s, many of these processes were combined using "sweeps," which "continued in use in the lower South until the mid-twentieth century." Other improvements in plows, rakes and cultivators developed by the 1850s remained in use until after World War II. Similarly, scrapers for removing unwanted vegetation between rows, seed planting devices (some horse-drawn), and other implements appeared before the Civil War and remained in use for nearly a century.<sup>8</sup>

Until the 1940s, when mechanical harvesting became more widespread, picking cotton was a tedious, arduous task. Cotton bolls cluster about midway up the waist-high plant, approximately a foot from the ground. Bolls have five compartments or "locks," each containing lint to be harvested. If the cotton was at its prime and the pickers experienced, locks could be plucked intact in one motion. Pickers gathered several bolls in hand before depositing them in the long bag draping from one shoulder and resting on the ground. Bags were emptied into baskets that were weighed at the end of the day, and the picker credited accordingly. Estimates of cotton picked per field worker, whether slave or free, vary widely throughout the nineteenth and early twentieth centuries. East of Natchitoches, in Catahoula Parish, Louisiana, on the Mississippi River, in the 1850s, slaves averaged forty-five pounds per day, but in other areas could pick up to 200 pounds per day; by the 1930s, handpickers averaged from forty-five to 125 pounds per day.<sup>9</sup>

Seed Cotton yield also improved through the century. Although figures varied widely by location,

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<sup>7</sup>Moore, *Emergence*, p. 38.

<sup>8</sup>T.B. Thorpe, "Cotton and Its Cultivation." *Harper's New Monthly Magazine*, VII (Feb. 1854), p. 456; Moore, *Emergence*, p. 39; William C. Holley, *Changes in Technology and Labor Requirements in Crop Production: Cotton*. (Washington: Works Progress Administration, 1937), *passim*.

<sup>9</sup>The lower 1850s figure is quoted in Moore, *Emergence*, p. 9, citing *DeBow's Review*, XII (1852), 632-3, and the higher figure of that decade is from Moore, *Emergence*, p. 12; the lower 1930s data is from Roman L. Horne and Eugene George McKibben, *Changes in Farm Power and Equipment: Mechanical Cotton Picker*. Washington: Works Progress Administration, n.d. (C. 1937), p. 5, while the higher data from that decade is from Holley, *Changes*, p. 51. Britton, *Bale*, p. 81. According to Hubbard, *Cotton*, p. 60, just prior to World War I, pickers earned approximately \$1 to \$1.25 per hundred weight.



## MAGNOLIA PLANTATION COTTON GINS AND PRESSES

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according to Thorpe, a contemporary observer, a "great yield" is one thousand pounds of 'seed cotton' to the acre, which makes two thirds of a bale of ginned cotton of four hundred and fifty pounds." The average was believed to be one bale per two acres of seed cotton.<sup>10</sup>

**Gin House**

Gin houses varied in size from one site to the next. Generally, they increased in size as power sources changed from draft animal to steam. Where horses or mules powered cotton equipment, structures were small and simple. Those with steam engines were substantially larger, their stacks dominating the local skyline. The steam engine would power not only the gins and press, but also grist and saw mills and other woodworking machinery housed either with the gin or in nearby structures, connected to the engine by means of shafts and belts.<sup>11</sup>

The Magnolia gin house is of great interest and requires further analysis to resolve its date of construction. An 1850s map depicts a gin house at approximately the same location.<sup>12</sup> However, the present building's size and construction quality suggest a date substantially later.<sup>13</sup> It is a large agricultural structure, and appears to have been constructed at one time, rather than added to over a period of years or decades. Uniform uprights and floor joists support floors, walls, and roof beams (although current roof beams are new). Joints throughout are mortise-and-tenon. Sidewall sills consist of three segments, two long beams joined with one short beam: joining configurations differ side-to-side, but footers, sills and uprights are consistent throughout with same-date construction.

The integrated large wood-screw press was likely retrofitted to the structure and is of little help in assessing the building's date of construction. In short, the age of the wood screw press appears to be inconsistent with the age of the building. The press (discussed in more detail below) is cited

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<sup>10</sup>Thorpe, "Cotton," p. 175.

<sup>11</sup>Moore, *Emergence*, pp. 71-2; Britton, *Bale*, p. 18, 24-5,

<sup>12</sup>Furnished by Dr. Ann Malone.

<sup>13</sup>As late as 1880, the U.S. Census described the ordinary gin house as "a common two-story, gable-roofed frame building, of very rough construction." Clearly, the gin house at Magnolia is vastly superior in materials and construction techniques to the typical facility described in the 1880 Census. Edward Atkinson, "Report on the Cotton Manufactures of the United States." U.S. Department of the Interior, Census Office, *Report of the Manufactures of the United States at the Tenth Census* (1880). (Washington, DC: GPO, 1883), p. 944

MAGNOLIA PLANTATION COTTON GINS AND PRESSES

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in the National Register nomination as "ca. 1830... incorporated into the house structure."<sup>14</sup> George Lowry, a mechanical engineer writing in 1898, suggests this type of press was prevalent from 1810 until the introduction of power screw presses between 1840 and 1860, and the steam or hydraulic press in 1870,<sup>15</sup> but Samuel A. Goodman, Jr. purchased a nearly-identical press for his Tyler, Texas farm in 1875.<sup>16</sup> From its joinery and hardware, the press appears to be from the antebellum era; if so, then it was likely built into the building when the structure was erected, probably sometime in the late nineteenth century. Resolution of these issues awaits further research into the building's components, particularly analysis of metal hardware, footer brick-and-mortar, and examination of the large cistern at the rear of the building.

The building's other modifications read more clearly. The first-level floor in the wood screw-press area was a later addition, possibly upgrading a dirt floor for hay storage, while joists exist for the second-level floor in this area. The area in front of the two-gin stand on the second level is not so clear. On the one hand, gin position suggests the presence of flooring, as do floor-joist notchings; on the other, existing floor joists are also notched in a way that is consistent with the presence of a press in this section of the structure. The floor in front of the hydraulic press reveals the location of the ramp transporting baled cotton from the second to the first level, although there are remnants of other uses in this area that are not easily explained. A seed storage area likely existed somewhere in the vicinity of the building's center, as did a lint room.

There is much we do not know, and cannot determine from available artifacts, about the setup and operation of the cotton gins and presses at Magnolia. In addition to questions of power (see below), the internal configuration of the gin house prior to the installation of present ginning and pressing equipment is unclear, especially the location of the gin or gins, lint room, and raw seed-cotton and seed storage areas.

**Power**

Unfortunately, little remains of the sources of power for equipment at the Magnolia gin house. This is particularly true of power sources predating extant ginning equipment. Steam was first used to power gins on a plantation in Mississippi in 1830, and by the 1850s steam-powered gins were more widely distributed; Britton dates the general shift to steam to the post-1870 era. Certainly, a plantation the size of Magnolia could easily have made use of such a power source. Steam engines were generally housed in separate buildings or, as in the case of the engine at

<sup>14</sup>National Register Nomination, continuation sheet 1, item number 7, page 2.

<sup>15</sup>George A. Lowry, "Ginning and Baling Cotton, from 1798 to 1898," *Transactions*, American Society of Mechanical Engineers, Vol. XIX (June, 1898), p. 819.

<sup>16</sup>Britton, *Bale*, p. 48.

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Magnolia, in a shed behind the gin house. The existence and location of a steam press pre-dating the existing dual-box press are matters of conjecture at this time. According to George Lowry, a mechanical engineer writing in 1898, steam did not come into use for presses until the 1870s.<sup>17</sup>

The type and size of the steam engine once mounted on the footers at the rear of the house is also unknown, as are its date of installation and any previous power source.<sup>18</sup> The separator, distributor, gins and condenser were likely driven directly by the steam engine, with power transmitted via a system of shafts and belts. It is probable that the steam engine in turn powered a hydraulic pump to run the press. The extant drive system consists of a main shaft, patented in 1885, six wood belt wheels manufactured by the Reeves Pulley Company of Columbus, Indiana, and two metal wheels. Several other wood wheels are distributed around the barn. Representative contemporary horizontal steam engines used in this capacity developed "steam working pressures of 85 to 100 p.s.i. (pounds per square inch), with pumping capacities ranging from 9 to 15 gallons per minute up to 3,200 pounds hydraulic pressure per square inch" delivered to the press.<sup>19</sup>

Likewise, the source of power for the wood screw-press and earlier gins is indeterminate. A similar press at the Goodman ranch at Tyler, Texas, now at Texas Tech at Lubbock, Texas, was mule-powered.<sup>20</sup> Other contemporary presses utilized draft animals, and it is likely, given the relative technological sophistication of the remaining screw press, that the same was true of Magnolia. Unlike surviving contemporary presses, however, the Magnolia press has no prominent "buzzard wings" to which draft animals would have been attached. Although possible, it would have been an extreme anomaly for the press to have been powered by humans. It is noteworthy that the press is in near perfect balance with a low-friction metal pivot point, thereby necessitating a minimum of power to rotate it and draw down the platen. Wear marks on the rotating slanted legs suggest that rope may have been wrapped around the inclined support members, possibly to attach a cross brace for the draft animal. Although no physical evidence has been uncovered to suggest it, motive power from a mule or horse walk around the press could have been transferred, by means of belts and pulleys, to other parts of the barn and used to power early gins. This is, at best, conjecture.

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<sup>17</sup> Lowry, "Ginning," p. 819; Moore, *Emergence*, pp. 58, 71; Britton, *Bale*, p. 51.

<sup>18</sup> According to Ambrose Hertzog, in an interview with the author 17 September 1996, the building housing a steam engine was destroyed in 1939, and the engine was then sold.

<sup>19</sup> Charles Abel Bennett, "Standard Density Cotton Gin Presses," U.S. Department of Agriculture, *Circular No. 733*, August, 1945, p. 13.

<sup>20</sup> Britton, *Bale*, p. 48.

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**Cotton ginning**

"Cotton ginning includes the cleaning and other preliminary processes involved in preparing seed cotton, as well as the separating of the fibers from the seed. When harvested, cotton usually contains dirt, hulls, leaf fragments, and other material which must be removed if the ginned lint is to have the highest market value."<sup>21</sup> In short, the ginning process involves not just a single machine, but a sequence of devices designed to separate lint from sticks, trash, hulls and seeds. Separation of trash and other plant materials from the cotton boll is accomplished as the cotton is transported from wagon to gin to condenser. Seeds are removed by the saw gin, a variation of the invention first patented by Eli Whitney in 1794.<sup>22</sup>

Ginning capacity improved throughout the nineteenth century. Gin size was generally rated by the number of saws, although increases in their diameter and speed to some extent also increased capacity. In 1830, a Mississippi plantation, sixty-saw gin cleaned seed cotton enough to make approximately four bales; just over two decades later, a fifty-five saw gin produced by Daniel Pratt yielded five bales in just 12-1/2 hours. More efficient pressing technologies likely would amplify the superiority of the later gins, whose bale-output was measured at nearly 500 pounds per bale. By the Civil War, eighty-saw gins had become common on the largest plantations, with output rated at about ten bales per gin per day.<sup>23</sup>

Texan Robert Munger designed a series of pneumatic and mechanical processes that "completely reorganized the hundred-year-old tradition of plantation ginning."<sup>24</sup> He sought remedies for the frequency and magnitude of gin house fires, the speed with which they spread, the amount of trash still contained in seed cotton as it entered the gin, the impurities cast into the gin-house air, and the labor and time resulting from delays and congestion in moving seed cotton from delivery wagon to gin.<sup>25</sup> The effects of these improvements were not lost on contemporaries. Engineer

<sup>21</sup>Charles Abel Bennett, "Ginning Cotton." United States Department of Agriculture, *Farmers' Bulletin* No. 1748 (August 1935), p. 1.

<sup>22</sup>The historical evidence is persuasive that Whitney did not invent the cotton gin but, rather, secured his patent upon the expiration of Hodgen Homes' *Caveat of Invention* granted by the War Office in 1789. Bennett, *Saw*, p. 17.

<sup>23</sup>Moore, *Emergence*, pp. 57-61; Thorpe, "Cotton," p. 175.

<sup>24</sup>Britton, *Bale*, pp. 58-9.

<sup>25</sup>Atkinson reported that "The Cotton is brought from the field in wagons and unloaded into the upper story by being carried up an outside ladder in baskets. It is then piled up on the floor until fed to the gin, which is done by hand." Atkinson, "Cotton," p. 4.

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George Lowry noted that "in the year 1791 two operators could produce two pounds of cleaned cotton per day. With the present system of automatic feeders, etc., only two men are required to remove the cotton from the wagon and attend to six gins producing twenty-four thousand pounds of cleaned cotton daily."<sup>26</sup> As late as 1939, over fifty years since Munger had first patented his devices, scientists and engineers at the USDA considered "(t)he pneumatic delivery of seed cotton to a gin system with mechanical distribution devised by Munger...one of the great developments in cotton ginning."<sup>27</sup> By stabilizing the supply of cotton to the gins, Munger's innovations transformed ginning from a set of discrete steps to a continuous process.

Most components of Munger's system are present at Magnolia, although the cotton suction apparatus is almost completely disassembled. The pneumatic elevator includes the fan currently outside the first level, various flue ducts, some of which appear to be lying about the gin house, and the vacuum box (also known as a separator) at present detached and lying under the condenser but originally attached to the distributor above the gin stand. The mechanical cotton distributor, still in place above the gin-stands, was designed and patented by Munger and manufactured by Continental Gin Company of Prattville, Alabama.<sup>28</sup>

In operation, the fan was attached to the vacuum box mounted directly on the distributor over the gin-stand. As historian Karen Gerhardt Britton describes the process, "(w)hen the fan was turned on, cotton was drawn from the wagon into and through the separator, and was dropped through the pipe into the wooden conduit," or distributor.<sup>29</sup> The separator sucked cotton into a chamber, where a beater forced it against a wire screen. Heavy foreign objects, such as nails and stones, were removed through a door, lighter substances like sand through exhaust chambers, and dust and leaf "trash" through a chimney. The distributor, a two-tiered trough, housed a belt studded with rows of spikes. At intervals determined by the number of gins being fed, rubber flaps supported by the spikes formed an air-tight seal against the sides and top of the distributor trough at the separator. The bottom tier of the distributor opened onto the gin feeders, maintaining a steady supply of seed cotton to each. Surplus cotton was dropped for later ginning.<sup>30</sup>

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<sup>26</sup>Lowry, "Ginning," p. 812.

<sup>27</sup>Francis L. Gerdes, et al. "Effect of Cleaning Seed Cotton on Lint Quality and Ginning Efficiency." U.S. Department of Agriculture, *Bulletin* No. 663 (January, 1939), p. 2.

<sup>28</sup>Robert S. Munger, U.S. Patent No. 308,790 (Dec. 2, 1884).

<sup>29</sup>Britton, *Bale*, p. 59.

<sup>30</sup>Robert S. Munger, U.S. Patents No. 308,790 (Dec. 2, 1884), and No. 478,883 (July 12, 1892); U.S. Department of Agriculture, *Cotton Ginners' Handbook* (USDA, Agricultural Research Service), Agricultural Handbook No. 503 (Dec., 1994), pp. 1-3.

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Munger's innovations were part of "a broad field of mechanical developments in accessories and auxiliaries to the cotton gin proper" that had the net effect of transforming and expanding the functions and configuration of the gin.<sup>31</sup> Designed to remove hulls and leaf "trash" while feeding seed cotton to saws, these "cleaner feeder" improvements include the huller patented by David G. Olmstead in 1859, the "independent huller-extractor" patented by Daniel T. Ethridge in 1878, and "the double-rib huller gin" patented by Washington L. Ellis in 1889.<sup>32</sup> According to Department of Agriculture engineers, these innovations still constituted, as late as 1939, "the bases for the present huller gin and unit extractor for the removal from seed cotton of burs, sticks, stems, and leaf."<sup>33</sup> Machinery at Magnolia lacks innovations developed during the early twentieth century designed specifically for conditions peculiar to the new cotton areas of west Texas. There, "labor shortages and weather conditions ... contribute(d) greatly to the harvesting of bolly (cotton whose growth was stopped by frost before bolls fully mature) and snapped (hand gathered cotton where entire boll was snapped off plant) cottons."<sup>34</sup>

The huller gins at Magnolia bear the patent date of Washington Ellis' saw-gin patent, August 27, 1889, and contain huller ribs consistent with Ellis' patent. Feeder-cleaners are two wire-studded fluted wood cylinders (approximately 67-1/4" long, the largest with eleven rows of wires set 1-1/2" apart in three-row sets, and the second and third rows off-set 1/2" from the previous row), and a heavy gauge screen. According to USDA engineers, "cotton passes through fluted rollers, over a rapidly revolving picker roller which is studded with spikes, thus beating the cotton vigorously and dragging it across a heavy wire screen." The greater portion of the dirt and dust drops through this screen and is carried out by a screw conveyor.<sup>35</sup> Ellis listed his address as Prattville, Alabama, and assigned one-half interest in his patent to Merrill and Daniel Pratt, suggesting he worked for the Pratts and that the gins were built by the Pratt Gin Company.<sup>36</sup>

<sup>31</sup>Gerdes et al., "Effect of Cleaning Seed Cotton...", p. 2.

<sup>32</sup>Gerdes et al., "Effect of Cleaning Seed Cotton...", pp. 1-2; David G. Olmstead, "Cotton Gin." U.S. Patent No. 26,516 (Dec. 20, 1859); Daniel T. Ethridge, "Cotton-Gin." U.S. Patent No. 206,097 (July 16, 1878); Washington L. Ellis, "Saw Gin." U.S. Patent No. 410,082 (Aug. 27, 1889).

<sup>33</sup>Gerdes et al., "Effect of Cleaning Seed Cotton...", p. 1.

<sup>34</sup>Gerdes et al., "Effect of Cleaning Seed Cotton...", p. 2.

<sup>35</sup>Fred Taylor, et al. "Cotton Ginning Information for the Farmers." *USDA Farmers' Bulletin* No. 764 (Oct. 31, 1916), p. 10.

<sup>36</sup>Washington L. Ellis, "Saw Gin." U.S. Patent No. 410,082 (Aug. 27, 1889).

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Operations to separate lint from seed evolved throughout the nineteenth century, and Magnolia gins incorporate those improvements that would be expected in state-of-the-art late nineteenth century gins. Gins have 70 saws 10" in diameter set 3/4" apart with moderate roach-back teeth, ribs approximately 1/16" apart, standard mote board, eleven-row cylinder brushes with 120 brushes/row, and an open-box seed augur. From the cleaner-feeder, seed cotton was fed to the saws which separated lint from seed. Seeds fell into the seed augur running at the base of the gin and was carried to a seed room or bagging station. Saws pulled lint through ribs and the cylinder brush doffed it from saw teeth, creating a draft sufficient to send lint to the condenser. According to Munger's early patent, the flue running from gins to condenser needed to be of sufficient length to allow lint fibers to straighten and additional remaining dirt and dust to drop out. The condenser separated lint from air by means of a revolving screen and dropped densely lapped lint into the press box for pressing and baling.<sup>37</sup>

#### Pressing and Baling

Once ginned, cotton was baled for transport to market. Early in the nineteenth century, before LeComte purchased the Magnolia, the most aggressive cotton producers on the Mississippi sought to exploit the tendency of shippers to assess shipping charges by volume rather than weight by packing their cotton as densely as possible. The use of screw presses dramatically increased bale weight. In 1790, the average U.S. bale weighed approximately 200 pounds. This figure steadily increased, reaching approximately 300 pounds in 1830, and 500 pounds for "Alabama, Louisiana and Mississippi" cotton in 1855. Nonetheless, as Joseph Addison Turner, a mid-nineteenth century student of the cotton industry observed, though "the commercial standard of quantity in the cotton trade is generally the bale...the weight of the bale is by no means uniform."<sup>38</sup>

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<sup>37</sup>Robert S. Munger, "Mechanism for Handling Lint Cotton," U.S. Patent No. 308,787 (Dec. 2, 1884; Bennett and Gerdes, "Ginning Cotton," p. 36, 38; Charles A. Bennett, *Saw and Toothed Cotton Ginning Developments* (Dallas, TX: the Cotton Ginners' Journal and the Cotton Gin and Oil Mill Press, 1962), pp. 39-53.

<sup>38</sup>Moore, *Emergence*, p. 11; Joseph Addison Turner, *The Cotton Planter's Manual; Being A Compilation of Facts from the Best Authorities on the Culture of Cotton, Its Natural History, Chemical Analysis, Trade and Consumption, and Embracing a History of Cotton and the Cotton Gin*. (NY: C.M. Saxton and Company, 1857), pp. 273-6,



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**Wood Screw Press**

Several sources suggest that the wood screw press was constructed on-site in the mid-1830s.<sup>39</sup> If this is true, the wood press at Magnolia was, indeed, state of the art equipment in the universe of early nineteenth century cotton plantations.<sup>40</sup> Most other extant presses, and pictorial evidence of contemporary presses, are of the "buzzard wing" design, in which

the box is made of rough, unplanned boards, the screw is of wood, rudely chiseled out, and the whole construction is of the rudest and most primitive kind. The power is applied by means of long levers, which extend on either side. To these levers mules are hitched...

The press usually stands fifty feet from the lint-room of the gin-house, and all the lint has to be carried to the press at this distance, through mud and dirt, and in all weathers.....Such is a fair account of the buildings and machinery for preparing cotton for the factory, formerly used throughout the South, and still the kind most frequently met with.<sup>41</sup>

Thus, the Magnolia wood screw press differs from most of its contemporaries in its overall design, the quality of its construction, the quality of the construction of the surrounding structure, and in the respective locations of the cotton ginning and pressing areas. It closely resembles the Goodman press, made in the vicinity of Tyler, Texas around 1875.<sup>42</sup>

The press consists of three main parts: frame, yoke and screw assembly, and box and pivot assembly. The press frame utilizes the structure's frame, with massive wall studs and second story joists supporting the press' frame uprights and stabilizing diagonals. The massive screw is secured to the yoke, a fish-belly shaped timber, by mortise and tenon joint, and is attached on the other end to the platen. The yoke and screw assembly rides in slots cut into the inside walls of the frame uprights. The box and pivot assembly has five main parts: uprights inclined slightly inward;

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<sup>39</sup>Conversation with Dr. Ann Malone, Sept. 18, 1996. Dr. Malone's research suggests that Ambrose LeComte II, who purchased the plantation in the 1830s, was a forward looking businessman who likely would have adopted technology such as the wood screw press. See also National Register Nomination, Magnolia Plantation, continuation sheet 1, item number 7, page 2.

<sup>40</sup>See, for example, HAER No. NC-1, "Flowers' Farm Cotton Press, c. 1850," Anson County, North Carolina; HAER No. SC-11, "Cotton Press," Dillon County, South Carolina.

<sup>41</sup>Edward Atkinson, "Cotton," p. 945.

<sup>42</sup>Britton, *Bale*, pp. 48-9.

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cross arm with threaded hole for the screw; upper box; lower box, including gates, movable end rails and base; and the iron pivot and pivot-base upon which the box assembly rotated.

Burlap or some other rough cloth was set on the bottom of the box, the gates closed, and cotton fed into the upper box at the second floor level. (It is not known to what level the box was filled with cotton lint to yield bales of approximately 400 - 500 pounds.) To press the cotton, the entire press assembly was rotated clockwise. The screw did not turn because it was locked into place by the mortise and tenon joint at the yoke; rather, the entire yoke, screw and platen assembly was drawn down the frame by the action of the threads in the cross arm at the top of the box and pivot assembly. Once the cotton was pressed to the level of the lower box, twine or wire was then wrapped around the bale and secured, and the bale pried out of the press before the press was turned counter-clockwise, raising the platen and plunger again.

**The Dual-box hydraulic press**

The two-story, dual-box hydraulic press compress cleaned lint into bales of approximately 500 pounds. As late as 1916, the hydraulic press was considered to be "very quick," but was also thought "the most expensive kind (of press) to operate, and requires a larger investment."<sup>43</sup>

As in the case of the seed cotton elevator and distributor, Robert Munger was key in the development of cotton pressing technology. Until the 1880s, the typical press had a single box, with the first hydraulic-powered press appearing in the 1870s. Munger expanded from one press box to two pivoting on a central axis; added a trampler to press the lint into the box; and developed "dogs" to restrain the lint under tension until the press was rotated and the cotton pressed and baled. The press at Magnolia is a Munger design manufactured by the Continental Gin Company, probably c. 1900.<sup>44</sup>

Four brick columns support the press from below. Directly atop the columns a system of large wood beams supports, guides and anchors the vertical axle. A large hydraulic cylinder containing an upward-charging ram is framed within the brick columns, resting on wood beams within a valve pit. Two boxes that receive tramped lint and hold it for pressing rotate opposite each other on the axle just below the second level turntable floor. A counterweight system for returning the ram to the cylinder operates adjacent to the cylinder. Upper level boxes are equipped with "dogs"

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<sup>43</sup>Taylor et al. "Cotton Ginning," p. 16.

<sup>44</sup>Robert S. Munger, "Cotton Press." U.S. Patent No. 308,789 (Dec. 2, 1884); "Cotton Press." U.S. Patent 394,125 (Dec. 4, 1888); Charles A. Bennett, *Cotton Ginning Systems in the United States and Auxiliary Developments*. (Dallas, Texas: the *Cotton Ginners' Journal* and the *Cotton Gin and Oil Mill Press*, 1962), pp. 4-11; Britton, *Bale*, p. 73; Lowry, "Ginning," pp. 818-21.

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to lock pressed lint in place prior to baling, pivoting front and back doors, and locks. A cylinder with ram for lint tramping rests on supports above the boxes, and a counterweight system for returning the ram to the cylinder operates adjacent to the far side of the press.

In operation, burlap or cloth was laid on bottom of press box. On the upper level, densely lapped lint left the condenser and filled the press box. At intervals, an operator released a valve triggering the trumper, which pushed the cotton into the box, where it was locked under tension by the dogs. Counterweights were released and the trumper returned to the cylinder. Press boxes were then rotated 180 degrees, and the condenser began filling the second box with cleaned lint. Simultaneously, the lower-level cylinder rammed the tramped cotton to the second level, where it was banded and removed.

The appropriate material to bind the bale was a constant debate. Until the turn of the century, cotton producers generally relied on the time-honored material: rope. But that is not to say that they had not tried other methods. Indeed, both wood and metal had proven unsatisfactory, as had various buckle systems, and conservative planters remained loyal to rope.<sup>45</sup>

Labor in the gin house was among the most difficult work involved in producing cotton for market. As Thomas Knox observed, "(t)he process of ginning cotton is pretty to look upon, though not agreeable to engage in." In the antebellum era, up to ten slaves worked the equipment on large plantations: four transporting cotton to and from the gins and collecting seed, two maintaining draft teams driving the gins, and four working the press and its draft teams. "This apartment is technically known as the 'lint-room,'" Knox continued.

The air is full of the flying lint, and forcibly reminds a Northerner of a New England snow-storm. The lint falls, like the snow-flakes, with most wonderful lightness, but, unlike the snow-flakes, it does not melt. When the cotton is picked late in the season, there is usually a dense cloud of dust in the lint-room, which settles in and among the fiber. The person who watches the lint-room has a position far from enviable. His lungs become filled with dust, and, very often, the fine, floating fiber is drawn into his nostrils. Two persons are generally permitted to divide this labor. There were none of the men on our plantation who craved it.

By the 1920s, mechanization had considerably thinned gin crews, and pneumatic cotton conveyance had cleaned the air considerably. In Burton, Texas, a crew now consisted of a manager, two ginners, a pressman, and an engineer.<sup>46</sup>

<sup>45</sup>Moore, *Emergence*, p. 66; Britton, *Bale*, p. 43.

<sup>46</sup>Britton, *Bale*, p. 27, 88; quote from King, *Campfire*, p. 3

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**Conclusion**

The Magnolia Plantation gin house contains cotton ginning and pressing equipment representing all aspects of cotton processing, from seed cotton handling to lint baling, from the 1880s through 1939. The fan and conduit system, both partially destroyed, suggest the means by which seed cotton was moved from wagons and trucks to the gins on the second floor, although reconstruction of the roof may have obliterated the precise location and configuration of this apparatus. A standard conveyor distributed seed cotton to the two-gin stand, vintage 1890s, and a second flue system carried cotton to the condenser and then to the dual-box hydraulic powered press.

For a longer period, various components represent discrete aspects of the process, albeit unevenly. Extant press and baling equipment--a wood screw press of undetermined date and a dual-box hydraulic press from the turn of the century--represent several generations of pressing and baling technologies. Note, however, that notchings in second-floor joists and reused beams on the first floor proximate to the hydraulic press suggest the presence of another press, possibly a metal variant of the wood screw press. Ginning technology is less chronologically representative. A gin in an extreme state of disassembly lies about the first floor, but its components--huller, and saw and brush cylinders, in particular--suggest it is at least a close contemporary with the extant two-gin stand on the second floor. Thus, there is no ginning equivalent to the wood-screw press, while remaining ginning equipment is consistent with the extant seed-cotton distribution and hydraulic pressing and baling technologies.

The Magnolia gin house and equipment possess a high degree of integrity. Considered in context with extant structures on the plantation, they are potentially a powerful tool with which to interpret the American South's quintessential industry--the production of raw cotton--and, perforce, significant themes in the development of a regional economy, labor force, and culture that speak equally as authoritatively to national themes.

# APPENDICES

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Note: HAER documentation of the Magnolia Plantation Cotton Gins and Presses continues work recording the Magnolia Plantation completed by students at Tulane University in 1986. Developed as a Peterson Prize entry, this set included the plantation house (HABS LA-1193), gin barn (HABS LA-1193-A), slave quarters (HABS LA-1193-B), overseer's house (HABS LA-1193-C), blacksmith shop (HABS LA-1193-D), fattening pen and pigeonier (HABS LA-1193-E), privy (HABS LA-1193-F), corn crib (HABS LA-1193-G), and store (HABS LA-1193-H).

Photographs by John Nicely, September 1996

- LA-11-1 VIEW SOUTHEAST, GENERAL VIEW, NORTH AND WEST ELEVATIONS
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