Conserving Creole: A historical review of Louisiana Creole architecture and an analysis of subsequent conservation practices

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1.0 Introduction

The topic for this dissertation came, not only from a personal interest in Creole architecture, but also from a curiosity of the conservation practices applied to these structures. The French and Spanish Creole architectural tradition in Louisiana is one of three major architectural types to have emerged out of the American colonial period and therefore, is a rarity that deserves attention. My research question is: what preservation processes are currently being used to preserve this particular architectural type and are they sufficient? My research aims include exploring the significance of this type through its history and analysing current conservation methods with a critical eye. The major methodologies I will use include qualitative textual research, case studies and interviews with those in charge of preserving my chosen case studies. I suspect to find that current conservation practices are sufficient, but there may be room for improvement in, not only the practices themselves, but also in the legislation that supports these practices.

My aim in researching this subject is to assess whether the conservation practices used to treat Creole cottages, townhouses and plantations are suitable for sustaining the structures for the future. The first objective I must explore to support my aim is to assess the historical significance of the architectural type in an attempt to understand why conserving these structures is worthwhile and necessary. I will do this through a series of historical sources, books, architectural journals etc. The second objective is to identify the specific conservation needs of the structures, whether it is salvation from humidity and blight, or a simple paint job. This will be accomplished through interviews and a personal assessment of the cases.

Following will be the third objective of identifying the current conservation methods as they apply to each case. This includes renovations and conversions into museums or private
housing, relocation and specific technologies for specific materials such as timber and ‘bousillage’ (a natural insulation with mud and animal hair or grass). The final objective will be assessing the effectiveness of the current methods and legislation and determining possible changes that may be beneficial to conserving the Creole architectural type.

Each chapter is distinct in its content and purpose. The first section covers the architectural history of the Creole type which includes cultural and architectural sources, terminology, materials, types and gradual evolution of the architecture. The next section discusses the case studies of Magnolia Mound Plantation house, Merieult townhouse and the Wells family cottage. This will include historical backgrounds and architectural descriptions. Next will be the chapter concerning preservation legislation and methods, beginning with an introduction to national and Louisianan preservation legislation. Then a discussion of the preservation needs of the case studies will precede current technologies and methods used on the case studies and at a national level. The final chapter contains the analysis and personal conclusions on the effectiveness of the conservation technologies and legislation.

2.0 Architectural History

Before delving into how one can conserve the Creole structures of Louisiana, it is important to discuss the history and development of the type, beginning with its international roots.

2.1 The Creole Influence

Of America's six colonial building traditions, Creole architecture is the only one actually to have evolved in America. The Swedes, Dutch, Flemish, Spanish, and British all imported
building types from the mother country instead of developing their own native colonial styles (State of Louisiana. 2010). The French Creole building tradition appeared in New France, i.e., in the Mississippi Valley during the French colonial period, roughly 1699-1762. The region was sparsely settled at the time, therefore the overwhelming majority of French Creole architectural examples were built in Louisiana (Louisiana Division of Historic Preservation. 2010). (For more information on the French influence, meaning of the word ‘Creole’ and earlier examples, see Appendix).

From the earliest days of colonization, almost every ship leaving France stopped at the port of Cap Francoise (later Cap-Haitian) on its way to the Louisiana colony. This stopover introduced both the French Canadians and European French to the West Indian Creole building traditions that would eventually influence their traditions (Vogt, 2002). West Indians brought a variation of a loggia to Louisiana, where it was transformed into an expanded gallery (Daley and Gross, 2007). This tradition of evolution continued well into the 1800s. By the 1830s and 40s, one sees houses that combine French Creole features and Anglo-American traditions such as symmetry and a central hall plan (Louisiana Division of Historic Preservation. 2010).

Characteristic Louisianan Creole buildings include: modest cottages, grand townhouses, raised cottages in rural locales, and narrow shot gun houses. All share plans, materials and features meant to foster comfort and ventilation in a hot, humid climate like high ceilings, a lack of interior halls, shallow building depths, overhanging roofs, galleries, shutters, French doors and casement windows, and foundations set well above wet earth and potential floods (Daley and Gross, 2007).

The typical Creole house can be described as follows. Its most important features include 1) generous galleries or verandas, 2) a broad spreading roofline, 3) gallery roofs supported by
lightweight wooden colonnettes, 4) placement of the principal rooms well above grade, (sometimes a full story above the ground), 5) the use of a form of construction utilizing a heavy timber frame combined with an infill made of brick (briquette entre poteaux) or a mixture of mud and moss called bousillage, 6) multiple French doors, and 7) French wraparound fireplace mantels that centred on boxed chimney flues on interior walls. Other sources also characterize Creole architecture by certain geometric conventions. These consist of a central core floor plan with a few rooms and various optional ancillary spaces which encircle the central core. This gives the Creole house a tradition of expanding outward in all directions (Edwards, 1990). They also tend to be asymmetrical and lack interior hallways. Openings are placed solely for the convenience of the interior, and without any regard for a pleasing architectural effect on the exterior (i.e., producing an irregular schedule of openings). Often the rear range of rooms consists of an open loggia with a small room at each end known as a cabinet (Louisiana Division of Historic Preservation. 2010).

Through the many years of change and assimilation of the architectural styles, four types of Creole buildings emerged: the Creole cottage, a galleried one-story house lacking hallways and featuring a cabinet/loggia range in place of a rear gallery; the raised Creole plantation house; normally a two-story dwelling which represents the apex of Louisiana’s Creole architecture, the Creole townhouse which was built in more populated areas like Natchitoches and New Orleans; and the pigeonnier, a small tower-like outbuilding with upper-floor nesting boxes for birds, which will not be included in the case studies (State of Louisiana. 2010).
2.2 Traditional Building Techniques and Materials

Some traditional building techniques that the Creoles used include colombage, briquet-
entre-poteaux, poteaux-sur-solle, and poteaux-en-terre. One of the earliest methods of
construction used by the French European engineers was the poteaux-sur-solle, (posts-on-a-sill)
technique. It consisted of the placement of vertical timbers on a heavy timber sill resting directly
on the ground. In some cases a double sill was utilized, with one buried directly below grade.
The exterior walls were covered with weatherboard siding, also known as wood lap siding. A
similar later technique called colombage consisted of a half–timber construction held together
by different joinery techniques common at the time in Normandy and elsewhere in Western
Europe where wood was available for construction. It consisted of widely spaced, vertically
squared (and occasional diagonal) timbers with the space between filled with various materials
and brick. These timbers were often left exposed. The previously mentioned timber frame
incorporated French joinery i.e., angle braces that are extremely steep, running all the way from
sill to plate, in contrast to English joinery where the angle brace is almost a 45 degree angle
(Louisiana Division of Historic Preservation. 2010). However, because the beams were placed
directly on the ground, the wood was easily susceptible to rotting because of the damp ground of
the Louisiana terrain.

Another method used was poteaux-en-terre, which involved driving roof bearing posts
vertically into the ground and filling in between the posts with earth, not brick. Unlike the
briquet-entre-poteaux (brick-between-posts) construction, the traditional French colonial method
called for the timber frame to be filled with a combination of brick and earth and raised on brick
piers. The structure would be covered by an enormous umbrella roof, a variant of the single-
pitched hipped roof, supported by Norman trusses (Daley and Gross, 2007). The exterior walls
were also covered with weatherboard siding or stucco to provide protection from torrential rains that were a common occurrence in the colony (Vogt, 2002).

All of these methods are very similar; they require wooden posts that are either vertical, set on a ‘sill’ or placed at diagonal angles, the exteriors for the buildings are generally covered in a kind of cladding to protect from the harsh heat and wet climate, but the most important similarity is the need for a sort of insulation. What was available at the time was earth and earth mixtures such as bousillage, and brick. In Normandy this infill, called noggin, was most often broken-clay tile or cut stone; in Louisiana, brick and bousillage, a combination of mud, lime and a binder such as Spanish moss or horsehair, were used. It could also be a mixture of clay and vegetable fibres, with binders that included straw and animal hair and sometimes burned oyster shells (Katz, 2005). It was affordable, widely available and an effective insulation (Daley and Gross, 2007). The historic earth plaster is composed of a timber frame pegged together and little sticks placed diagonally to hold in the mud and retted Spanish moss loaves. In less fine houses, the loaves were left in an undulating fashion and cover the timber. This may have served to protect the house from fire. In nicer houses or where wallpaper was desired to apply to the walls, the mud plaster is hatched back and a skim coat is applied to even the surface so it is flush with the timbers (Frantom, 2011). As mentioned, the walls were generally covered with a thin layer of whitewash.

When the first brickyard was established in New Orleans in 1725, brick began to be used for foundations and as a filling between the wall timbers for greater solidity. Walls were still covered with boards or plaster to keep moisture from the porous bricks. Roof coverings were at first strips of bark, thin boards or split cypress shingles, but when the local brickyard began producing tile, this became the preferred material. Because of unsuitable soil conditions, heavy
brick construction for two-story buildings was found impractical and such masonry buildings were generally only one story. A second story constructed of colombage, bricked between posts, was preferred. These timber framed walls were covered with boards where exposed to the weather and sometimes plastered over where protected by galleries. In most houses in the cities, the masonry first story was a grade level basement for storage, dining, or office use, while the living quarters were above, protected from dampness and elevated enough to enjoy whatever breezes might be available. (Louisiana. Bureau of Governmental Research. 1968).

In many Creole houses, both urban and rural, timber was used just for the frames. Longleaf pine was one popular building material, but virgin cypress abounded in southern Louisiana and proved to be ideal since it was also strong and flexible. Cypress also became a favourite timber type used in Creole construction because it has a high resistance to rot and insects. It was also used for fixings and handcrafted furniture (Daley and Gross, 2007).

In the urban areas like the port city of New Orleans, the new building laws after the great fires of 1788 and 1794 influenced the materials used in new constructions as well as a newfound preference for Creole cottages over the earlier Norman buildings. Plastered brick buildings with nearly flat tile terraced roofs with balustrades around them came into popularity over the wooden weatherboard sided buildings with the large hipped roofs. (See Appendix for a general evolution of the architecture).

2.3 Types

To analyse the different Creole architectural types, I have itemized the basic components of the cottage, plantation house and townhouse below with more detail.
2.3.1 The Cottage

As mentioned above, Creole cottages supplanted Norman cottages after the great fires in New Orleans; however, raised Creole cottages with front galleries and Norman cottages continued to be constructed in the rural areas of the Louisiana colony (Vogt, 2002). The urban examples of the building type are one or one and a half-story, gable-ended double residences built up to the front property line. Usually accompanied by a small alley on each side, an access passage can also be located through the centre of the structure. Two rooms wide and two rooms deep, sometimes with a loggia flanked by small cabinet rooms at the back, the entry is typically accessed from the sidewalk. The French type has four French doors on the street front; a more American type is two doors and double-hung windows on the front. Found in the late eighteenth century, this type of dwelling continued to be built through the nineteenth century and is found all over the city [New Orleans], and is primarily in older neighbourhoods (Koch and Wilson/Urban, 1979).

Outside of the city, other cottage types were more suitable for the open terrain. The cottages were of varying plans and construction methods but were able to cover more land and spread out. Ones situated around the bayous and rivers were almost always set up on brick pilasters or on a wooden sill to protect from flooding. The broad spreading rooflines and wide galleries and porches were a staple for the purpose of ventilation. Other ventilation tools were the French doors and shutters. Another building type that flourished on the outskirts of the cities is the plantation house.
2.3.2 The Plantation House

Creole plantation houses are aesthetically very similar to cottages. They are one to two stories, raised above the ground and typically made out of wood since it was the predominant material available in the rural areas. As far as the organization of the houses, the main living areas rest atop brick pillars and walls of what are essentially above ground basements that allow air to circulate beneath the house proper, expose the upper floors to breeze and keeps the living quarters above water during floods. This ground floor was sometimes partitioned to provide discrete spaces for dining rooms, warming kitchens, and storage for food, wine and carriages. The porches had deep eaves and encircled the house, shielding it from rain and sun. Hipped
roofs and deep eaves also helped alleviate the heat (Daley and Gross, 2007). (Figure 2). Stairs on the outside of the house connected the first- and second-story galleries.

Many of the original Creole plantations, like any living building, were adapted over the years for different families’ needs and tastes, sometimes portions being altered according to the popular architectural styles of the time. However, the core layout that is indicative of the Creole architecture was hardly affected as the lack of internal hallways remained constant. The most important characteristic of the plantation house to remember is that it was just one piece of an overall estate that included the land and crops, separate buildings like the slave quarters, a kitchen, an above ground cellar and, if the owner was a wealthy one, a pigeonnier (Figure 3). Another building type was similar to the plantation house in that it was the centre around which a family and business would turn. This microcosm however, is in an urban setting rather than rural.

Figure 2 Darby Plantation House, Baldwin, Louisiana.
2.3.3 The Townhouse

In mixed residential areas, the predominant building is the three to four story houses with its attendant outbuildings and slave quarters. Heights vary from a one story cottage to a four story city house, with an average of three stories, and also have galleries or verandas (Louisiana. Bureau of Governmental Research.1968). Also, urban areas had what is known as a Creole townhouse, a multi-story, typically L-shaped building standing flush with the sidewalk. The first floor served as mercantile space and the upper floors as the family's living quarters. Some Creole townhouses had a low mezzanine-type storage area known as an entresol located between the first and second floor. A wide carriage passage connected the street to a rear courtyard. Today, surviving Creole townhouses can be seen mainly in New Orleans' French Quarter. (Figures 4 & 5).
Figure 4 Gallier Townhouse in New Orleans, Louisiana.

Figure 5 Gallier Townhouse courtyard showing the L-shape, New Orleans, Louisiana.
Like other Creole structures, materials for the urban townhouse were traditionally timber with a bousillage infill. However, the disastrous blazes in 1788 and 1794 destroyed many of these earlier structures, and lead to the adoption of stricter building codes and the use of fire-resistant brick and roofing materials as well as stucco (Daley and Gross, 2007). Because of these fires, no French Creole structures survive in the French Quarter of New Orleans but the Creoles, as mentioned, were not only French, but were of many European descents including the Spanish. Much that the early French developed was carried on, adopted, or modified by subsequent Spanish and American settlers. Those townhouse examples that date from the Spanish period after the 1794 fire are two or more stories, have French doors throughout, a raised basement, a galleried pavilion above and a rear courtyard. According to some sources, in back were service buildings with sloping roofs to direct rain into cisterns. As in other examples, there would be an entrance to the rear through a narrow passageway between the buildings.

The four most common types of townhouses constructed in the Quarter during this period were the *porte-cochere*, the hotel, the Creole townhouse, and the entresol. The most common was the *porte-cochere* type which included a large covered entrance in the building that allowed the upper levels to extend the full width of the house and was wide enough for carriages to pass through to the rear of the property. The whole building assumed an L-shape (Katz, 2005). The ground floor loggia sheltered an exterior stairway to the upper floors; and there was also a beautiful enclosed courtyard that held a two-story service building containing a kitchen and bedrooms for servants and slaves (Daley and Gross, 2007). Outbuildings were most commonly constructed in the rear yards of Creole cottages and Creole townhouses. Generally two or three stories in height, these service buildings were most often built of brick and had a narrow, cantilevered gallery used for passage at the upper level(s), with slender wooden colonnettes that
supported a shed roof sloping into the courtyard. The first level housed the kitchen and servants’ quarters, while the upper level provided quarters for servants or the young men in the family who were allowed greater independence and privacy than the young women who, by contrast, were required to live in the main house. The separation of the kitchen from the main residence kept the heat generated by cooking out of the house and also isolated the main house from the threat of fire associated with kitchens (Vogt, 2002).

Townhouses with side-gable roofs could be placed side-by-side, forming a continuous façade at the street. The rear courtyard, accessed by the *porte-cochere*, was protected from the view of the neighbours by a tall, brick, windowless wall that formed the adjacent *garconniere* (a small apartment). In the courtyard could be found other outbuildings like stables, a kitchen, a wash building, and a privy. It also served as outdoor workspace, as well as a place for social gatherings. The Creole townhouse is similar to the *porte-cochere* except that the passage from the sidewalk to the rear courtyard is too narrow for carriages and is only for pedestrians (Vogt, 2002). Other than the width of the *porte-cochere* and the materials, the basic Creole townhouse plan remained one of the most predominant building types in the French Quarter of New Orleans.

3.0 The Case Studies

With an introduction to the history of the Creole architecture and subtypes complete, it is now appropriate to continue with the individual histories of the case studies which include the Merieult townhouse, the Magnolia Mound Plantation house, and the Wells cottage. A brief architectural description of each will also be included.
3.1 The Merieult Townhouse

The Merieult house was constructed for Jean Francoise Merieult, a merchant-trader, around 1792 on the site of the first barracks, forges, and workshops of the Company of the Indies and is an important example of a combined business establishment and dwelling in colonial New Orleans. It was customary here for the commercial or professional operation to be on the ground floor with the family residence above. The house was one of the few buildings to survive the fire of 1794. It underwent extensive renovation in the style of the 1830s for Manuel J. de Lizardi, at which time the ground floor openings were modified with the addition of the granite columns. The house was operated as a hotel, the Royal House, by the Trapolin family, who owned it from 1878-1938. In 1938, it was restored for Gen. and Mrs. L Kemper Williams by architect Richard Koch. Since 1966 it has been the home of the Historic New Orleans Collection, and the House is open to the public (Vogt, 2002).

An architectural description for the National Register of Historic Places (2010) describes the Merieult House as a fine example of the type of house being erected in New Orleans during the period following the devastating fires of 1788 and 1794. (Refer to appendix for a more in-depth description). It is a two story structure of brick construction, with a moderately pitched roof with the ridge parallel to the front of the house. The roof, now slate, was originally covered with tiles. The facade, built flush with the property line, extends the full width of the lot--one of the original city lots of 60 by 120 French feet. (Figure 6).
In the rear of the house is an extensive courtyard, formerly entered by a porte-cochere large enough for carriages, but now it is entered by a pedestrian opening in which a stairway to the second story has been erected. The rear façade of the principal house is almost obscured by the two and three story service wings that flank the courtyard. (Figure 7).
The original plan of the main house was apparently L-shaped, and the half gable end of the ell can be seen above the balcony of the rear facade. There is an original dormer window with a steeply pitched roof and batten shutter. The three story wing on the opposite side of the courtyard also has wood balconies with Greek Revival type rectangular posts. Parts of the walls of the service wings probably date from a much earlier period. (Figures 8 & 9).
Figure 8 Trapolin addition from 1880s.
The entire upper story has been remodelled recently as exhibition galleries for The Historic New Orleans Collection, with modern heating, air conditioning, lighting, etc. The house is now a museum kept in the same condition after the 1930s renovation. The front section of the house was converted into a shop, art gallery and reception area where visitors can take a guided tour to the back of the house, the two story, 1880s Trapolin addition, courtyards and
outbuildings. Because of the new Spanish building codes applied to buildings in the Quarter after the 1788 fire, Merieult house is made of timber posts with brick infill and covered with paint and a plaster to make it more fire resistant. The outbuildings like the kitchen are set away from the main house as another fire preventative measure.

3.2 Magnolia Mound Plantation House

The second Creole type of structure is the plantation house. One such building is the Magnolia Mound plantation house in Baton Rouge, Louisiana. Completed in 1791, with its early French and West Indies architectural influence, this plantation house began as a settler’s house and was once part of a 900-acre plantation situated along the Mississippi River. This mere settler’s house was enlarged and renovated in 1802-1805 to its elegant beauty of today (Louisiana Public Record Search. 2010). The current floor plan is a regeneration of repairs made in 1815. It has a hall-free plan, French doors leading to a covered gallery and exposed-beam ceilings in most rooms. It is raised well above ground level to protect against flooding, capture breezes and prevent wildlife and livestock from wandering into the house; atypically for a plantation house, the height of the piers does not allow for a full story of ground-level living space. It was during the Duplantier ownership that the house was extended and the decor changed to Federalist motifs like the central hall which gave the house a unique style that showed the transition from Creole into Federal (Daley and Gross, 2007).

Magnolia Mound had a long succession of owners, the most important being Armand Duplantier, a native of Voisin, France, who came to America to serve with Lafayette during the American Revolution. He acquired Magnolia Mound in 1802 after marrying Constance Rochon, a Creole whose family had also immigrated from France. The widow of the previous owner,
John Joyce, Constance brought with her two children from her previous marriage. Duplantier, a widower, had four of his own, and together had an additional five children, which called for a major expansion of the house resulting in an added dining room, two rooms on the south side and an extended front gallery.

The original house was described in the conveyance records as measuring approximately 47 feet in length and 20 feet in depth with a 10 foot gallery. These dimensions are the measurements of the first portion of the present house. Clear evidence of the change between the mud and moss construction of the late 18th century and the lath and plaster of the late 19th century occurs on the front gallery (National Register of Historic Places. 2010).

Originally the house had a ‘side by side’ three room arrangement. It was extended to the rear (east) in the early 19th century to include a formal dining room and two service rooms. One service room provided stair access to the unfinished loft. A "U-shaped" gallery was constructed during this second stage of development. A shed porch was constructed on the rear (east) facade. (Figure 10).

Figure 10 East facade of Magnolia Mound Plantation house showing additional porch and rooms added in the 19th century.
During the late 19th century, rooms were added under the gallery on the north and south. The basic form of the house is rectangular with a large hipped roof, which covered all rooms and galleries. Two dormers punctuate the roof on the west or ‘river’ side. One major chimney identifies the original back to back fireplace of the original plan, a second chimney was included in the early 19th century addition to the rear, and a third chimney on the north was added in the late 19th century (National Register of Historic Places. 2010).(Figure 11).

Figure 11 West (river) facade of Magnolia Mound Plantation.

The construction of the house followed the technique of the Franco-Spanish periods of Louisiana settlement with the house raised approximately four feet above ground. At present, the outer piers are of brick (rebuilt in 1951) and the interior supports of large cypress posts. Heavy cypress timbers were placed upon the piers which formed a sill. Each sill member is notched and pegged. The vertical framing members were a mortise-and-tenon construction. The space between vertical members was filled with mud and moss, or, bousillage. The exterior walls were covered with clapboard. The walls under the gallery were most probably planked; however, this changed to vertical tongue and groove boards in the early 20th century. The roof framing consists of an "A" frame resting on the original walls of stage one, with an extended rafter
system which tied into the ridge intersection and extended out to cover the rear addition (dining room) and galleries. There is not a ridge pole, but all rafter intersections are notched and pegged. The roof cover was constructed of cypress shingles.

Typical of early Louisiana plans of this region, the house did not have corridors; therefore, large double provincial doors provided access and major ventilation for the house. Heavy plank shutters protected the interior rooms. During the early 19th century, double-hung windows were added. (National Register of historic Places. 2010).

In 1951, Marie Blanch Duncan contracted with the architectural firm of Goodman and Miller to renovate the old plantation home. A subfloor was added, electricity installed, bathrooms put in, and extensive repairs made. Miss Duncan left the property to her cousin Mrs. John Anderson who offered the house up for sale to Al German, a real estate developer who was planning to demolish the house to construct an apartment complex on its site. (Bannon, Carr and Edwards, 1984). In the 1960s, the Foundation for Historical Louisiana fought and won a battle with the developers to save the house. Sufficient records remained so that Magnolia Mound could be accurately restored in the style of the Federal period from 1800-1830.

3.3 The Wells Cottage

“This was a fancy house for a rich man because most of the houses being built at the time were still built in the poteaux-en-terre style but this one is on a sill,” - Carol Wells, current owner.
The Wells family home is a 1776 classic Creole cottage that is timber framed, of *poteaux-sur-solle* construction with bousillage walls, hand hewn timbers and cypress post and beam construction and is raised above the ground a couple feet. Gabriel Buard of Natchitoches, which was then part of the Spanish colony of Louisiana, built a two-room dwelling with a central fireplace, a covered gallery on all four sides, and a hipped roof. In its early years it was used as a trading post. The galleries were enclosed in 1791 with the exception of the front gallery, and were all converted to provide additional living space. Gables were added to the end of the house in 1914 which produced the current roofline. It has a hall-free floor plan and French doors that are protected by solid wooden shutters. Plank walls were among the earliest types of interior partitions, but few have escaped demolition or modernization. There is a central chimney with one room to either side. The chimney would have originally been a stick and mud chimney according to Wells because bricks were not lain in Natchitoches until the very end of the 1700s for the purpose of a new jail. The rough-hewn posts supporting the roof are replacements that used old timbers, which were fitted into tenons of the top plate and pegged in place like the originals (Daley and Gross, 2007).
In 1914 the property was purchased by Dr. Richard Williams, who sold it to Dr. and Mrs. Thomas Wells in 1965. Remarkably, the house survived the area wide destruction during the Civil War’s Red River campaign and again escaped demolition for commercial redevelopment that predated the 1974 establishment of downtown Natchitoches’s historic district. Although the roofline and other features have been modified over the years, the house has been restored with a keen sense of its historical importance (Katz, 2005).

4.0 Introduction to Louisiana Preservation Practices

This next section is an introduction to the national standards for building preservation as well as Louisianan philosophy and process. Following will be the conservation needs of each of the case studies and a description of current and common practices. First, it is important to define the terms that will be used in this section. According to the Australian Burra Charter (1999), conservation means all the processes of looking after a place so as to retain its cultural significance. Maintenance means the continuous protective care of the fabric and setting of a place, and is to be distinguished from repair. Repair involves restoration or reconstruction. Preservation means maintaining the fabric of a place in its existing state and retarding deterioration. Restoration means returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material. Reconstruction means returning a place to a known earlier state and is distinguished from restoration by the introduction of new material into the fabric. Adaptation means modifying a place to suit the existing use or a proposed use.

As the former Dean of the Tulane Architectural Preservation, Samuel Wilson Jr., once said, “It depends on what the building is being restored for. In the 1920s, 30s and 40s we weren’t
thinking of restoration. We were thinking of saving old buildings. We now call it ‘adaptive use’ which was to make them comfortable houses to live in. If the building required changes, we didn’t hesitate to make them. We never thought about archaeology. At a plantation we did a lot of research and archaeology before we started any work. There were buildings we didn’t hesitate to remove things that we thought were not done well. Now, there is a great deal to do about it, no matter how bad it is, if it’s part of the history of the building everything ought to be preserved.” (Gorin, 1990).

This statement can be used to summarize the evolution of conservation, not only in Louisiana, but in the States as a whole with the general philosophy that ‘if it’s part of the history of the building everything ought to be preserved.’ This is however, subject to adaptation depending on the building. The United States Secretary of the Interior has specific standards that Louisiana, and the rest of the country, must adhere to when rehabilitating culturally significant sites. The Standards pertain to historic buildings of all materials, construction types, sizes, and occupancy and encompass the exterior and the interior, related landscape features and the building’s site and environment as well as attached, adjacent, or related new construction. The Secretary of the Interior’s Standards for Rehabilitation include:

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use.
   Changes that create a false sense of historical development, such as adding conjectural
   features or architectural elements from other buildings, shall not be undertaken.

4. Most properties change over time; those changes that have acquired historic significance
   in their own right shall be retained and preserved.

5. Distinctive features, finishes, and construction techniques or examples of craftsmanship
   that characterize a property shall be preserved.

6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of
   deterioration requires replacement of a distinctive feature, the new feature shall match the
   old in design, colour, texture, and other visual qualities and, where possible, materials.
   Replacement of missing features shall be substantiated by documentary, physical, or
   pictorial evidence.

7. Chemical or physical treatments, such as sandblasting, that cause damage to historic
   materials shall not be used. The surface cleaning of structures, if appropriate, shall be
   undertaken using the gentlest means possible.

8. Significant archaeological resources affected by a project shall be protected and
   preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

9. New additions, exterior alterations, or related new construction shall not destroy historic
   materials that characterize the property. The new work shall be differentiated from the
   old and shall be compatible with the massing, size, scale, and architectural features to
   protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

At first glance the standards seem all encompassing and straightforward but also quite conservative in the general philosophy of retaining original structures and fabric but encouraging rehabilitation for an alternate use. Louisiana, however, seems to follow this philosophy and aims to retain original fabric of significant places while adapting them to fit other uses such as a house museum and private dwellings.

In the wake of recent natural disasters and economic downturns, the state of Louisiana has been striving to update its conservation principles with various documents including a document by the State Historic Preservation Office of Louisiana (2011) that call for a focus on five main areas over the next five years: 1) developing advocacy efforts, 2) expanding education and public knowledge, 3) building visibility, 4) streamlining services, and 5) identifying and protecting historic properties. Though much broader than the international standards and not specifically geared towards buildings, these goals encompass other aspects of preservation that the standards do not which are equally important- advocacy and public dealings.

Set within an international context, the Burra Charter calls for a similar process that includes assessing the cultural significance of the place of the building as well as its fabric which includes the materials. After assessing the significance, an agreement is reached that all applicable knowledge and skills will be used to conserve the fabric. “Traditional techniques and materials are preferred for the conservation of significant fabric. In some circumstances modern techniques and materials which offer substantial conservation benefits may be appropriate.”
However, they must be supported by firm scientific evidence or a body of experience (1999). Then a preservation policy is attained through an assessment of the significance, the owner’s needs, resources, external constraints and its physical condition (1999).

4.1 Conservation Needs of the Case Studies

The Magnolia Mound Plantation house has had several facelifts over the years, the most recent completed within the past few months. Nowadays the Creole plantation is a house museum with almost everything on the inside restored to its original state from the 1830s when the Duplantier family owned it. Since the house is a museum, it has a regular maintenance schedule that caters to the preservation needs of the building’s fabric. However, from previous years of neglect and bad decisions, certain areas of the house still need attention. According to director Steven Fullen, an installation of a subfloor for an air conditioning system in the 1960s caused the original cypress floorboards to warp because the subfloor was attached directly to the floorboards. Another area of concern is the various brick material through the house including the piers and chimney stacks. The original handmade bricks were repointed with cement a few years ago which caused the bricks to trap moisture and begin to deteriorate. (Figure 13).

Figure 13 Brick pier with damaged bricks at Magnolia Mound Plantation house.
Vegetation is another problem on the plantation particularly because some of the oak and magnolia trees set close to the house are over 200 years old and are protected, meaning they cannot be relocated for the benefit of the house. This leads to an excess of leaves in the gutters which is potentially a threat to the stability of the roof and subsequent moisture problems that must be dealt with by the team. Other threats to the roof include some failing flashings and inappropriate fixtures. The back stairs have also had a moisture problem in past years although they were made of cypress.

The Merieult townhouse was also adapted to be a residence until it was overtaken as part of the Williams Historic New Orleans Collection. The house had many modern conveniences added to it since the 1790s which included electricity, phones, toilets and even an elevator. Needless to say much of the fabric was disturbed during these processes but these changes were made over many years before preservation was even a thought.

Like the plantation house museum, regular maintenance is applied to the Merieult house. An exterior material problem that occurred with this house is degeneration of the paint, stucco and the cast iron railings and intricate balconies on the top story of the front façade, and the balcony around the back house. A few of the boards of the wooden balcony and stairs on the inside courtyard are loose or have fallen. (Figure 14).

Figure 14 View of painted cast iron fixtures and loose boards under balcony at Merieult house.
The outer walls of the house have paint and plaster falling off and some of the brick exposed is degrading from moisture penetration. (Figure 15).

![Figure 15 Failing stucco and paint on exterior wall.](image)

Over vegetation is also a potential risk with the extensive amount of plants and vines that cover the courtyard and cast iron balconies. In the iconic porte-cochere that was redone when the neighbouring property was taken over, the mortar between the bricks has receded and exposed some of the brick to moisture. The large beams that make the ceiling of the opening, however, seem to be in good shape. The cast-iron rain good fixtures are also in fairly good condition. Much of the original glass has been replaced in the doors and windows and something I noticed on the inside of the house was plexi-glass panes screwed into the wood over the glass in the door so that it formed a space between them as an attempt at double-glazing the windows. This could
potentially trap moisture between the panes and cause condensation which could build on the wooden frame. (Figure 16).

Figure 16 Plexi-glass pane over glazing in door.

The Wells house is a private residence and therefore has a little less strict maintenance plan. Most of the house is original timber, traditional cypress, but certain areas are beginning to show signs of weathering, particularly the expansive porch and gallerie at the front of the house. The wooden beams are bleached and are beginning to fray at the edges, but they are still stable. The floor boards are sagging from years of visitors but are still quite strong. Vegetation, like the other cases, could potentially be an issue since the yard is slightly overgrown and the crawl space underneath could harbour overgrowth and harmful vermin and insects. The interior also contains
much of the original timber floorboards except in the kitchen where modern tiles have been installed.

A section of plaster on the wall of the porch exposed the cross timber construction and the bousillage infill. This exposed bit of earth is subject to all sorts of problems which include weathering and wind damage, disintegration from moisture penetration and weakening from possible insect infestation. The failing plaster and lime wash also causes concern since it protects the bousillage as well as the timbers behind it. There are similar cases on the interior of the house where the plaster is cracking or falling away and the timbers and bousillage are exposed to the elements of modern heating and cooling. (Figure 17).

![Figure 17 Failing paint and plaster exposing internal beams.](image)
In the attic, again, are original cypress timbers and it is possible to see differing layers of cypress shingles and asphalt shingles to keep it grounded to the beams. The original chimney stack can be seen in the attic as well, there are various ash and soot discolorations and some weathering of the mortar that has left the brick sticking out in places. (Figure 18).

Figure 18 View of chimney stack in attic of Wells house.
Plaster that is around the fireplace in the study has fallen away, possibly due to excessive heat. On the porch, there are four French doors, each with a set of wooden shutters. Each door has glass panes, almost all of them original but a few have been replaced with modern glazing.

4.2 Conservation Practices

There are a series of processes a preservation team must do before actually treating a building. First, it is recommended to do an archaeological survey in case of finding remnants of any artefacts from previous owners, or to find an original part of the building that may have been destroyed. Along with the archaeological survey, an historical investigation is usually carried out to attain basic ownership and construction information. This results in a statement of significance that spurs the conservation process. Then after the preliminary research, a general survey of the building is taken to assess the major damages and issues. If needed, an archaeological building survey is done to find the earliest pieces of the building and then specialists are called in to evaluate extensive damage and offer advice for special repair of materials, a particular problem or an architectural feature.

The process is almost identical in the case of Creole buildings as outlined by Marcy Frantom, a preservationist of Quality Finish in Natchitoches, Louisiana. “Here we would first examine the building to note and document any unusual features, conditions, deterioration, or signs of culture. The engineers and architects determine what needs to be done to conserve the building. A history and ethnography is done to understand the past use of the building, period of significance in history, and what its future use is. Normally, the building is lifted to examine and repair anything structural underneath. We hope to replace as little original material as possible.”
(Frantom, 2011). ‘To replace as little original material as possible’ is the general philosophy for all the case studies.

4.2.1 Completed Conservation Efforts

Magnolia Mound director, Steven Fullen, has worked closely with the Recreation and Park Commission for the Parish of East Baton Rouge (BREC) for several years to bring the plantation house back to life. One of the major projects Fullen has been working on is correcting the damage caused by a 1965 subfloor installation for an air-conditioning system. The problem was that the subfloor was glued to the original floorboards, and once the A/C system started, the plywood subfloor began to warp and in turn, warped the cypress boards. Fullen said the boards did not have room to warp and bend the way they needed, so the tongue and grooves popped out. To correct that, Fullen and his team ripped up all the old sub floor by hand and put in a new subfloor that has a weather barrier on the bottom that presses up against the cypress floor boards, but are not attached to them. Instead, it has been attached to the joists and any other supportive structure. As an added measure, spray foam insulation was put on the underside of the weathering strip to keep it insulated from underneath. Remarkably, the cypress boards started straightening out, and were then reattached to the base by nails. Fullen said, “We could have done a complete floor rehab but I think that would have taken away the character.” Since the boards were structurally sound and are historic material, I think the choice to maintain them was the most preservation-conscious action. (Figure 19).
One of the concessions Fullen and his team had to make to keep the house was to fix the A/C system and insulation in the roof to help protect the period furniture inside, though it “would have been nice to have a traditional roof” (Fullen 2011). The 1965 A/C installation involved adding decking felt and nailing the traditional cedar shakes to that, “which wasn’t right” since there is no decking under a traditional roof. So the whole roof was taken off, any rotten decking was replaced with heavy waterproof felt and covered with a skeleton structure to which the cedar shakes were nailed. The old insulation was a closed cell foam which meant that any water that might be dripping from the outside would not permeate through and would be trapped, causing damage. The old foam was therefore hand scraped off and once it was gone, a layer of green weathering strip was laid down and new open cell foam insulation was installed so that any water would penetrate through and show a leak. They tried to limit where to put the new spray foam to where there was the weatherproofing and there are spaces around the beams to protect them. The foam is also fireproof. (Figures 20, 21 and 22).
Figure 20 View of a traditional roof with no decking in the adjacent kitchen building.

Figure 21 Weather strip in roof before foam insulation.
Other works in the attic include using excess beams from the porch in the 1810 cove ceiling which is covered with a fitted copper flashing not nailed down so it can be lifted up and shown the wood underneath. (Figures 23 and 24).
Fullen said they chose copper for ‘artistic’ reasons and had some left over from replacing the flashings. He did not know if there was lead in the original house, but he likes copper because it is a good indicator of weathering and lead might pose a safety issue. A sprinkler system, new electrical wiring and a restoration of the dormer windows to make them fit properly within the roof was also done. Copper flashings were placed around all the chimneys as well as a copper cap to keep insects out of the house. They also scraped out the cement mortar in the chimneys and repointed it with a lime based mortar as well as replacing some of the bricks with modern ones.

Projects on the exterior of the house include scraping out the cement mortar on the brick piers and repointing them with a lime based mixture. Most of the bricks are handmade by a manufacturing company Magnolia Mound works with but some have been scavenged from other projects. (Figure 25).
A weatherproofing spray was put on the bricks after the repointing. According to Fullen, it is a wax base spray that breaks down over time so it does not lock in moisture but helps the sealing process and the bricks settle in to the replacement mortar. The skeletal system and cedar shake shingles is an inch and a half off of the decking and weather stripping so air circulates underneath them and acts as a traditional roof as well as helping with moisture problems along the walls caused by rain run-off. (Figure 26).
As mentioned, the steps of the back porch have had a chronic problem of rotting even though they were of the traditional cypress so Fullen reconstructed them with Spanish cedar. As with most timber constructions, there were small cracks in various spots that were dealt with in an innovative way. The team took bits of healthy wood from cypress beams that were to be thrown out and made it into a putty that was fitted into the cracks. (Figures 27 and 28). When asked why they did not use synthetic putties Fullen replied, “We try not to use synthetic things unless it’s parts that don’t matter much like the brick pillars that aren’t in an original spot, use something more modern but make them look old. But mostly I just don’t trust them.”
Figure 27 Back stairs redone in Spanish cedar in April 2011.
Figure 28 Crack in banister that was sealed with a wood putty and then painted.

Major jobs to the interior of the house include redoing the fireplace mantels in a Creole fashion, reconstructing a three bedroom wing of the house, and repairing the bousillage infill. (To learn more about the mantels and the reconstruction, please see appendix). In a far left room, the wall has been left exposed in a section and covered with glass to show the cypress mortise and tenon structure frame and the bousillage. (Figures 29 and 30). The traditional mixture is Spanish moss, horse hair and mud and clay, and is covered with plaster and a lime wash. After a fire in the 1990s that started at the back porch, the bousillage needed to be repaired so a man from South Carolina who processed Spanish moss was brought in. He unfortunately has died since then and Fullen says it is difficult to find traditional mixers. Fullen also said that the
bousillage wall is probably what staved off the fire just long enough for the sprinkler system to go off and save the rest of the house.

Figure 29 View of exposed wall showing timbers and bousillage.

Figure 30 Exposed bousillage.
The Merieult townhouse in New Orleans, though not as expansive as the plantation house, has also had some material issues to deal with. Since the timber and brick structure are not set off the ground like the other two case studies, moisture control is a huge concern. The preservation teams have replaced cement mortar with lime mortar in both the brick house and brick walls. And though most of the bricks are handmade, various areas have been replaced with modern bricks. The property is regularly painted and surveyed for any damage or leaks, especially with the addition of an art gallery on the first floor of the main house. The interior has been restored to the period it was when the Williams lived in the back house in the 1930s, but most of the materials on the exterior are from the 18th and 19th century constructions like the wooden balconies and cast iron railings. The cast iron goods like the railings and rain fixtures are often painted to keep from rusting. As mentioned, there seems to be a plexi-glass fixture over the glazing in the doors to help protect them. Protecting the porte-cochere has been a challenge because it is a covered space so it does not tend to dry very easily when moisture is introduced. The bricks have been painted and the beams cut and spliced when needed, although they are in fairly good shape. (See Figures 31-35).

Figure 31 Bricks repointed with lime mortar.
Figure 32 Painted cast iron balcony on back house.

Figure 33 Painted cast iron balcony on front house.
Figure 34 Painted cast iron downpipe on front of Merieult house.

Figure 35 View of porte-cochere with painted bricks and support beams.
In contrast, since the Wells cottage is not a museum and therefore has no museum funding, the works have been a little less strict. Mrs. Carol Wells says that her and her husband had spent their energies on the two original rooms when it came to preservation. The bousillage walls are covered with mud and then painted with modern paint. The panelled ceiling is all modern panelling and painted because of the years of smoke from the fireplace, but the cross timbers are original. Wells said that because they were so old they had to hang them. The handmade bricks in the fireplace are also original and she said she has not done much work to it. Although the fireplace in the back rooms that followed the slope of the floor had to be replaced because the bricks were falling out. They had the floor in the back porch levelled because it was leaning towards the ground and had the original timber floor in the kitchen ripped up and tiled. In the roof, though it retains its cypress shingles, you can see the felt decking placed on the beams that Magnolia Mound had torn out in their project. The Wells’ expansive porch has had a few boards replaced and the support posts replaced as well. “The first problem is that we didn’t have any carpenters that understood about restoration. The people who built these did the best work they could with their primitive tools, the people working on them now thought they would use excellent tools and do a bad job,” said Wells. However, she was able to find a man to chip away at the posts by hand until they were similar to the older ones. (Figures 36-40).
Figure 36 Painted bousillage and cross timber wall in Wells residence.

Figure 37 View of front original room showing original bousillage walls with cross timbers and modern ceiling panelling.
Figure 38 Leaning fireplace with replaced modern bricks.

Figure 39 Underside of roof showing cypress shingles nailed to felt decking.
Figure 40 Replaced porch post that was hand hewn at Wells residence.
4.3 National Recommendations for the Preservation of Materials

Since Louisiana must follow the national standards, the Department of the Interior and the National Park Service established technical briefs to assist owners of historic properties in preserving their materials correctly.

4.3.1 Moisture damage and control

Excessive moisture is the greatest threat to the Creole structures because of the damp, hot and humid Louisiana climate. According to the standards, significant materials and features that contribute to the historic character of the building should be preserved and not damaged during remedial treatment. It also means that physical treatments should be reversible, whenever possible. The majority of treatments for moisture management stress preservation maintenance for materials, effective drainage of troublesome ground moisture, and improved interior ventilation. Of course, it may be necessary to consult with historic preservation professionals prior to starting work that would affect historic materials. Architects, engineers, conservators, preservation contractors, and staff of State Historic Preservation Offices (SHPOs) can provide such advice.

There are a few steps to follow before beginning any work to treat moisture damage like following basic principles that should guide treatment decisions that include:

- Avoid remedial treatments without prior careful diagnosis;
- Undertake treatments that protect the historical significance of the resource;
- Address issues of ground-related moisture and rain run-off thoroughly;
- Manage existing moisture conditions before introducing humidified/dehumidified mechanical systems;
• Implement a program of on-going monitoring and maintenance once moisture is controlled or managed and;
• Be aware of significant landscape and archaeological resources in areas to be excavated. Finally, mitigating the effects of catastrophic moisture, such as floods, requires a different approach (Park, 1996).

Surveying moisture damage requires constant attention. The information is divided into three categories: Level I covers preservation maintenance; Level II focuses on repair using historically compatible materials and essentially mitigating damaging moisture conditions; and Level III discusses replacement and alteration of materials that permit continued use in a chronically moist environment. (Park, 1996). Though the brief offers advice for both the interior and exterior, for the purposes of this report, the exterior will be focused on.

Level I recommends cyclical maintenance procedures on the exterior to eliminate rain and moisture infiltration. This can include installing ventilating fans that can improve damp conditions or reduce cooling loads. Though Creole houses are built to naturally ventilate, previous jobs such as the 1965 subfloor in Magnolia Mound may require extra ventilation.

For roofing and guttering, it is suggested to make the fixtures weather-tight and operational. Other requirements include; inspect and clean gutters as necessary depending on number of nearby trees, but at least twice a year; inspect roofing at least once a year, preferably spring; replace missing or damaged roofing shingles, slates, or tiles; repair flashing; and repair or replace cracked downspouts. Damage of wall surface materials should be repaired; repoint masonry with appropriately formulated mortar; prime and repaint wooden, metal, or masonry elements or surfaces; remove efflorescence from masonry with non-metallic bristle brushes. The treatment of window and door openings include eliminating cracks or open joints; caulking or
repointing around openings or steps; repairing or resetting weather stripping; check flashing; and repaint, as necessary.

The surrounding environmental setting can also be hazardous to a building such as the ground. The owner should apply regular maintenance procedures to eliminate standing water and vegetative threats to the building/site. Eliminate low spots around building foundations; clean out existing downspout boots twice a year or add extension to leaders to carry moisture away from foundation; do a hose test to verify that surface drains are functioning; reduce moisture used to clean steps and walks; check operation of irrigation systems, and clearance of air conditioning condensate drain outlets. Also, keep foliage and vines off buildings; trim overhanging trees to keep debris from gutters and limbs from rubbing against building; remove moisture retaining elements, such as firewood, from foundations (Park, 1996).

Since almost every example of a Creole structure is lifted off the ground for ventilation, a crawl space is created so, check the crawl space for animal infestation, termites, ponding moisture, or high moisture content; check foundation grilles for adequate ventilation. To avoid moisture, increase ventilation and maintain surfaces in basements and foundations. Also, check equipment like dehumidifiers, vent fans, and water detection or alarm systems for proper maintenance as required; check battery back-up twice a year (Park, 1996). As well as checking for condensation on pipes and insulate or seal joints of pipe and ductwork if necessary.

Moisture control at Level II says to repair features that have been damaged, and replace an extensively deteriorated feature with a new feature that matches in design, colour, texture, and where possible, materials.

Where roofing is concerned, new drainage systems for roof run-off may be installed in order to remove moisture from the base of the building. It is also possible to repair roofing,
parapets and overhangs that have allowed moisture to enter; increase attic ventilation if heat and humidity build-up is a problem, which it is in Louisiana; make gutters slope at 1/8" to the foot (Park, 1996). Add ventilated chimney caps to unused chimneys that collect rain water, which was done at Magnolia Mound.

On walls, repair spalled masonry, terra cotta, etc. by selectively installing new masonry units to match; replace rotted clapboards too close to grade and adjust grade or clapboards to achieve adequate clearance. Also, if holding rising damp in walls; coat walls with vapour permeable lime based rendering plaster if damp walls need a sacrificial coating to protect mortar from erosion; add termite shields, if evidence of termites and dampness cannot be controlled. Correct serious ground water problems; capture and dispose of downspout water away from foundation; and control vapour diffusion of crawlspace moisture. In the crawlspace, it is suggested to add polyethylene vapour barrier to exposed dirt in crawlspace if monitoring indicates it is needed and there is no rising damp; add ventilation grilles for additional cross ventilation, if determined advisable. Though I generally do not agree with adding a chemical barrier, it is dependent on the case.

For grade issues, re-establish positive sloping of grade and add subsurface drainage boots or extension pipes to take existing downspout water away from the building foundation to the greatest extent feasible. Add interior perimeter drains and sump pump; add dehumidifiers for seasonal control of humidity in confined, unventilated space (but don't create a problem with pulling dampness out of walls); add ventilator fans to improve air flow, but don't use both the dehumidifier and ventilator fan at the same time. This might be something for all my case studies to consider since they all contain period furniture that requires special care. Timber framing is the backbone of Creole structures, so to protect that, the brief suggests reinforcing existing floor
framing weakened by moisture by adding column support and reinforcing joist ends with parallel supports. Add a vapour impermeable shield, preferably non-ferrous metal, under wood joists coming into contact with moist masonry (Park, 1996).

Level III says to undertake exterior rehabilitation work that follows professional repair practices, it is advisable to replace a deteriorated feature with a new feature to match the existing in design, colour, texture, and when possible, materials. In some limited situations, non-historic materials may be necessary in unusually wet areas, such as the replaced back porch steps of Magnolia Mound with Spanish cedar as opposed to cypress.

When replacing roofs, correct conditions that have caused moisture problems, but keep the overall appearance of the roof; for example, ventilate under wooden shingles, or detail standing seams to avoid buckling and cracking. Be attentive to provide extra protection for internal or built-in gutters by using the best quality materials, flashing, and vapour impermeable connection details (Park, 1996). If insulation and vapour barriers are added to frame walls, consider maintaining a ventilation channel behind the exterior cladding to avoid peeling and blistering paint occurrences. I do not think this is a problem for Creole buildings because the lime wash is a breathable coating. It is an option to add a damp course layer to stop rising damp; this would be more feasible in the Merieult townhouse since it is not set up on piers like the cottage and plantation house. However, avoid chemical injections as these are rarely totally effective, are not reversible, and are often visually intrusive (Park 1996).

The brief says to consider removable exterior storm windows, but allow operation of windows for periodic ventilation of cavity between exterior storm and historic sash. But, Creole buildings already have this. For foundations, improve performance of foundation walls with
damp-proof treatments to stop infiltration or damp course layers to stop rising damp. Some substitute materials may need to be selectively integrated into new features (Park 1996).

4.3.2 Wood shingles

Moving on into more specific areas of material conservation, Creole structures are a great example of traditional roofs with wooden, specifically cypress shingles. According to another technical brief, they can last from 15 to over 60 years, but the shingles should be replaced before there is deterioration of other wooden components of the building. Appropriate replacement shingles are available, but careful research, design, specifications, and the selection of a skilled roofer are necessary to assure a job that will both preserve the appearance of the historic building and extend the useful life of the replacement roof (Park, 1989).

The following information is needed in order to develop accurate specifications for a replacement shingle: the original wood type (White Oak, Cypress, Eastern White Pine, Western, Red Cedar, etc.), the size of shingle (length, width, butt thickness, taper), exposure length and nailing pattern (amount of exposure, placement and type of nails), type of fabrication (sawn, hand split, dressed, bevelled, etc.), distinctive details (hips, ridges, valleys, dormers, etc.), note of any decorative elements (trimmed butts, variety of pattern, applied colour coatings, exposed nails), and type of substrate (open shingle lath or sheathing, closed sheathing, insulated attics, sleepers, etc.) (Park, 1989).

When replacing wooden shingle roofs, the following is advisable:

Highest Priority in Replacement Shingles:

* Best quality wood with a similar surface texture
* matching size and shape: thickness, width, length
* matching installation pattern: exposure length, overlap, hips, ridges, valleys, etc.

* matching decorative features: fancy butts, colour, exposed nails

Areas of Acceptable Differences:

* Species of wood

* Method of fabrication of shingle, if visual appearance matches

* Use of fire retardants, or preservative treatments, if visual impact is minimal

* Use of modern flashing, if sensitively installed

* Use of small sleepers for ventilation, if the visual impact is minimal and rake boards are sensitively treated

* Method of nailing, if the visual pattern matches

Treatments and Materials to Avoid:

* Highly textured wood surfaces and irregular butt ends, unless documented

* Standardized details (prefab hips, ridges, panels, etc.) unless documented

* Too wide shingles or those with flat grain (which may curl), unless documented (Park, 1989).

4.3.3 Bousillage

The earthen mixture that makes up bousillage is an iconic feature of the Creole architectural type and requires special attention. Though the National Park Service does not have a brief specifically for the treatment of bousillage, earth structures made from adobe have some of the same threats and treatments as the earth infill used in Creole structures. For example, bousillage has the potential to twist and crack because it is a material made from earth and it allows for much more movement. However, it should be noted that while both are earthen
materials, adobe is moulded into bricks rather than packed in between wooden posts and therefore may react differently.

When preservation or rehabilitation is contemplated for a historic adobe building, it is generally because the walls of the building have deteriorated in some fashion, much like the way bousillage walls deteriorate --walls may be cracked, eroded, pitted, or bulging. Some causes of damage include structural damage, water-related problems, which are almost always an issue in the wet climate of Louisiana, wind erosion, vegetation, insects and vermin, and material incompatibilities such as old cement plaster coverings or replaced timber with harder materials.

Adobe and bousillage surfaces are notoriously fragile and need frequent maintenance. Like adobe walls, to protect the exterior and interior surfaces of new bousillage walls, surface coatings such as mud plaster, lime plaster, whitewash, and stucco have been used. Such coatings applied to the exterior of earthen construction have retarded surface deterioration by offering a renewable surface to the wall. In the past, these methods have been inexpensive and readily available to the owner as a solution to periodic maintenance and visual improvement (United States Department of the Interior, USDI, 1978).

Cyclical repair like patching the bousillage involves cutting back into affected areas and finding the most compatible mixture of earth and aggregates is a must in the maintenance of bousillage walls. As much of the deteriorated surface coating as possible should be removed without damaging the bousillage fabric underneath. Never put another coat of lime plaster over a deteriorated surface coating. If serious deterioration does exist on the surface, then it is likely that far greater deterioration exists below. Generally this problem is related to water, in which case it is advisable to consult a professional.
If extensive recoatings in lime plaster are necessary, the owner of a bousillage insulated building might consider covering the walls with lath then plaster, thus creating a moisture barrier. Always patch with the same material that is being replaced. The complete removal of the lime coating is inadvisable as the process may prove to be more damaging than the natural deterioration (USDI. 1978)

Marcy Frantom is a partner of Quality Finish, a historic building preservation company that is based in Natchitoches, Louisiana, and has dealt first hand with Creole buildings. Frantom said, “Bousillage was usually covered as soon as manufactured nails and boards were available. Interior earth plaster was usually covered with a wash of glue or egg to seal it and then lime wash or calcimine. Sometimes wallpaper was glued directly onto the plaster or nailed on to the wood portions.”

The repair of earth plaster surfaces is a little different from the building of the original wall. The porosity of the dry plaster must be addressed. They use lime water to moisten but not saturate the wall. It firms up the surface somewhat with many applications. In deep holes, they usually add a little polypropylene fibre as a repair marker and it also helps avoid cracking. Then they float over the top with an unfibred mix. In making the earth plaster mix, they place some of the historical material in a jar with water and try to determine what proportion of sand, clay and silt is present so it can be emulated. Frantom also makes samples and dries them to make sure the mix is not too sandy or too clay-like. They use less than 5% type S autoclave lime in their mix to create a workable mix and to stabilize it. Then they continue misting the repairs and smoothing cracks until it settles in.

“In general, we use similar methods as you do in lime plaster--keying in, pressure and moisture control and we hope to replace as little original material as possible,” said Frantom.
They check the earth plaster for dryness with a moisture meter, and then make an acrylic bound lime wash and apply the first thin coat and wait about a week to make sure there are no drying problems before applying another coat or two. The acrylic bound lime wash is made of type S lime from a deposit in Genoa, Ohio and the acrylic is Edison Coatings Edison 342 which was designed to draw moisture out of the substrate. The type S lime has a 400 flexibility rate and, because it is autoclaved, is similar to lime putty without the cost and freight. “The acrylic lime wash is great for our climate because it is very humid here and the acrylic is less prone to mildew or mould than milk solids would be. We have used it successfully on wood buildings on the exterior for a 5-7 year life cycle,” said Frantom. They use the same recipe for historic wood, brick, modern brick, epoxy patches, modern wood, concrete, metal and paint coverage. This allows the firm to have a consistent specification for the National Park Service. When they use heavy pigmentation to the lime wash, they use a little more binder if the draw-downs show a need for it (Frantom, 2011).

“Our earth plaster tradition probably ended in the 1940s with the last house I know of being built in the early 1900s. The last man I know of practicing the repair of earth plaster died in the 1950s,” said Frantom. This lack of traditional practitioners, unfortunately, is a large problem in correctly preserving Creole buildings.

Other materials Frantom deals with include cast iron goods. “On metals, we remove the rust and apply three coats of a linseed oil/longleaf pine rosin/Manilla copal blend. Then, if the metal is in contact with rain, we also coat it with lime wash. What I usually do is put the ‘hard oil’ (unboiled linseed oil/rosin) on the rust treated metal and then go over that with the acrylic-bound lime wash if the metal is standing in the weather. It gives a long lifespan, about 5 years, as long as the metal is not the soft sort that possibly has rust pits in it that you can't get to with
that method. The Park also totally removes the metal, heats it up, and then immerses it in wax or oil.” (Frantom, 2011).

4.3.4 Historic Porches and Timber

Expansive porches are a very common and often crucial element to a Creole building so their upkeep is imperative. The best way to preserve these porches is regular maintenance like routine cleaning and other surface work, like painting. Although, sometimes there is a need for replacements and more intensive repair such as repairing by filling open cracks or joints, patching with epoxy or wood fillers such as was done in the Magnolia Mound plantation railing. Repairing railings and balustrades, replacing missing balusters, repairing column plinths and bases, repairing the porch roof and gutters, repairing the foundation, repairing a porch apron either by splicing in new wood of the same type. Replacement is also an option for porches like replacing porch floorboards, replacing steps, replacing column plinths and bases or entire columns as long as the materials are compatible.

The methods used for preserving porches can also be applied to other wooden parts of a building like the frames and weatherboarding; it is generally wise to use as close to the exact same material as historically accurate. But there is also an argument for chemically treated wood, stock components, plastic replacement and composites but that depends on the case (Leeke and Sullivan, 2003). Some use West Epoxy Systems structural epoxy to repair historical beams and sills unless they must replace or splice in a new piece. West's non-structural epoxy is considered reversible and is used for surface repairs as well to fascia or siding (Frantom, 2011).
5.0 Conclusions

As stated, it is the purpose of this discussion to assess the preservation processes, both technical and legislative, and comment on whether those processes can be improved. Overall, the technical aspects of material conservation seem to be acceptable in most cases. The Magnolia Mound preservation team, for example, has done almost everything correctly to preserve the house, like consulting historic sources to find measurements of wooden planks and original layout of the house and surrounding buildings. They were also successful in matching materials that needed to be replaced with like materials such as cypress timber and a mixture of bousillage that was compatible with the existing examples. When it was not possible to replace with like materials such as replacing the back porch steps with Spanish cedar, the material was better for the conditions and strains that were put on the steps and handled rot better. The team also fixed past jobs on the house like the 1965 subfloor that warped the original cypress floorboards and the cement mortar that was deteriorating the hand-made bricks on the piers. Refraining from reconstructing the floor and leaving the original floorboards, especially since they were straightening out and were structurally sound, was the best decision because it kept the character of the building and a major part of the fabric. Scraping out the cement mortar and replacing it with lime mortar on the piers was also best because it allows the bricks to breathe and not trap water which makes them disintegrate faster. Also on the piers, the team members were able to manufacture handmade bricks that were close to the original ones. And it seems that any small rot spots of the timber were either repaired by splicing in a new piece or had a wooden fibre putty inserted into them which was consistent with the wood type and therefore reacted similarly with the existing piece.
Magnolia Mound, however, did have to make some concessions that may not have been best for the preservation of the house. The foam insulation and weather stripping in the roof, for example, is unpredictable. Although it is open cell and is set away from the timber beams, it is still a foreign material that was never meant to go in this Creole house. However, air conditioning had to be introduced into the house to preserve the period furniture. This however, is understandable since it is a house museum. Raising the roof on a timber skeleton and attaching the cypress shingles to that, though, is interesting because it protects the shingles from being nailed to felt decking which causes them to rot more quickly, and extended the drip line so there would not be further moisture issues along the exterior walls. The crawl space of the house harbours much of the modern comforts like duct work and a new dual air conditioning system, anchored to the floor beams, which provides a constant and more frequent temperature control to the valuable furnishings inside without causing damage to the bousillage walls and cypress floors. Magnolia Mound’s general preservation policy is anything 20 years or older is left alone because anything that old is also historically significant. However, that may need to be extended to a 30 or 40 year period since some of the bad jobs that needed to be reversed like the subfloor and felt decking were done in the 1960s.

The Merieult townhouse in New Orleans has also had a relatively good team to work on keeping it up. Though, choosing to restore it to its 1830s state may not have been the best choice considering it is one of the oldest buildings in the city that was not destroyed by the fires, but that was the choice of the historic New Orleans Collection. Again, overall the preservation team has made good decisions about the preservation of the building fabric. They have continuously painted the cast iron railings and rain goods to keep them from rusting and have also painted and repaired most of the plaster. Also, since the building is mostly brick they have scraped out any
cement mortar and repointed with a lime mortar. Timbers were also either repaired or replaced with matching cypress pieces. Certain aspects of the conservation practices did seem lacking, though, such as painting the masonry. It was unclear whether it was a lime wash or a lime based paint because that would have given the bricks a breathable layer as opposed to a thick paint that was just added for aesthetic reasons. As seen in the picture above, it seems the wall is beginning to bubble from moisture build up and in turn eat through the pink-ish paint on the main house, which is a cause for concern.

There is one major difference between the Wells cottage and the other case studies: it is a private residence. Without Federal or state funding, certain concessions had to be made, some of which were not in the best interests of the material. Wells and her husband kept the main two rooms as they were with exposed beams and lime washed bousillage. The ceiling panels, however, are of modern treated wood, and may in the long run react negatively with the original support beams that are hung from the ceiling. Also, when looking in the attic it is possible to see the felt decking on the roof beams and the cypress shingles nailed straight to that. Though no rot was visible at the time, it may occur like the 1965 roof job at Magnolia Mound, not to mention it takes away some of the character of the house. Other important parts of the building fabric like the floor boards and larger fireplaces are original, however, which adds to the character. One of the best conservation jobs of this case study, I think, is the restoration of the porch. Wells made sure that any replacement timbers were cypress and she even had a traditional craftsman hand carve some cypress support beams much like the original ones would have been. In this case, the owners did the best they could with the resources they had.

In general the technical conservation practices that were applied towards the built fabric of the case studies were acceptable with the exception of a few practices such as using epoxy to
fill in historic timber. It is unknown what the long term effects are of putting this foreign material into beams and therefore may be extreme. Some preservationists view a fibre wood putty or splicing in like materials as much more appropriate. Also, it may not be best to apply a chemically treated or modern coating in order to help control moisture in an historical wall. A layer of lime wash is both protective and breathable so it does not trap the materials in moisture underneath. But most of the conservation practices the technical briefs and preservationists have provided are up to a good standard in that they promote natural and historical solutions like encouraging the use of like materials in replacements. However, something that I had noticed in my research was that much of the information from the National Park Service was dated from the 1970s and 1980s and give out of date suggestions like using Portland cement instead of lime mixtures for various repairs and replacements. This can be a dangerous misinformation for those attempting to repair historic structures without the help of professional preservationists.

Some of the discrepancies in these projects were probably caused by either lack of funding or lack of knowledge. The lack of knowledge leads into the legislative influences that are involved in the preservation of Creole buildings. Though there are national standards for the preservation practices of buildings, there does not seem to be any sort of communication between fellow preservationists in the state of Louisiana. Also, though two of the three case studies are on the National Register of Historic Places, there does not seem to be any sort of planning process or standards the owners of the buildings must go through to initiate any sort of conservation work like the listed properties of Scotland have to, for example. Frantom sums up this problem by saying, “I'm not sure what the National Register requires and how much "teeth" are in the rules. I recently worked on such a project for a private citizen and didn't see much interest in honouring the historic fabric. Minton tile! Portland on the brick! However, when we
work for the National Park Service, they use the latest ideas and techniques. So, I guess until citizens begin to realize how much value they are stripping away from their properties by ‘improving’ needlessly, they will continue to reduce the properly conserved historic house pool.” (2011). The Burra Charter seems to support this view in that historic properties should be treated using traditional techniques and materials and any modern works should be temporary and reversible so that it does not damage the historic fabric or the cultural significance.

Other issues are very specific to Louisiana, especially in the wake of recent natural disasters and economic down turns. A list of issues that block preservation efforts has emerged from the Louisiana State Historic Preservation Office that includes:

- Depressed fiscal situations
- Need for better public understanding of the importance of historic and cultural resources
- Too great an emphasis on emergency response, rather than on continuing inventory and evaluation of properties
- Insufficient protective legislation, especially at state and local levels
- Preservation groups that function independently and without a unified voice
- Lack of a clear public relations or public information strategy for preservation in Louisiana (State of Louisiana, 2011).

However, there are additional matters which threaten these very attempts which include:

- Damage to important resources during natural and man-made disasters
- Demolition or damage to resources during disaster recovery and re-building
- Suburban and urban development
- Vandalism, looting of archaeological sites
- Demolition by neglect of historic buildings
It is clear that preservation officers are aware of these issues, but what are they doing to tackle them? Like other states, Louisiana is furiously reworking budgets to accommodate for the economic strain while finding ways to educate the public and have a continuous evaluation of properties. Legislation is also beginning to trickle down from the national level with the initiation of the mentioned standards and Section 106 of the National Historic Preservation Act (see description in appendix). The greatest flaws, I think, of the Louisiana preservation practices are, a lack of public information, an ‘in an emergency only’ budget plan, lack of union among preservationists and a lack of traditionally trained craftsmen.

Informing the public has always been a problem in preservation matters but the United States and Louisiana are on the right track with the technical advice briefs available from the National Park Service website and the National Register of Historic Places. I do think that it would be beneficial to have some sort of process that owners of historic buildings must go through in order to do any repair works like owners of listed buildings must do for Historic Scotland. I think it beneficial to have a professional authority double check repairs to make sure they are both in code and do not harm the historic fabric or character of the building. Wells thinks “they are terribly careless now of what they allow and don’t allow” (Wells, 2011).

Something that must be pointed out is that the state of Louisiana has gone through much turmoil in the past decade including many natural and man-made disasters as well as economic hardships, so it is understandable why it is difficult to allocate funds for the preservation of buildings when so many other things need to be attended to. However, I do criticize the state philosophy of only finding the funds for emergency repairs even though they are crucial for disasters. The preservation office has already listed this type of budget plan as a concern and I agree. Most often times, emergencies are when a small problem that could have very easily been
fixed if the owner were guided correctly such as the subfloor that warped the cypress floorboards in Magnolia Mound, and the preservationists must go to extreme lengths to fix the now large problem, like ripping up the floor or a whole wall which is more expensive and hurtful to the fabric. But, if the state were to budget for regular surveys and maintenance of the historical properties, they would be able to find these small issues before they turn into big ones and overall be much less expensive and less harmful to the built fabric and character.

Although addressing these issues seems like a daunting task, what has hurt Louisiana the most in past years has also given it a tool to grapple with things like lack of budget. Such things as:

- National attention on Louisiana’s historic architecture, unique history, and diverse cultures in the aftermath of hurricanes and an oil spill
- Influx of post-disaster recovery funds that could lead to improved identification and preservation of historic structures, archaeological sites, and improved management of information, especially through GIS (see definition in appendix)
- Upcoming historical commemorations that can serve to highlight Louisiana’s textured past (State of Louisiana. 2011).

All of these bolster Louisiana’s preservation efforts by broadening the range of public knowledge to a global standard and providing funds from that effect.

Another major problem in Louisiana is the lack of communication between preservation groups. Magnolia Mound, for example, has three separate groups that help in its conservation while private owners like Mrs. Wells just have whoever is closest to them. But again, the state office recognizes this as a problem and will attempt to fix it. One suggestion may be to bring them all under one legislative process or document that makes them all state employees.
However, that is unlikely, so a more reasonable suggestion would be to have a conference where the groups may come together and share philosophies and practices. Speaking of practices, the last major issue with the Louisiana system is the lack of traditional craftsmen that are trained specifically for this unique architectural type. Without properly trained individuals, aspects of Creole buildings like the ever-important bousillage infill, are subject to substandard treatments and substitutes that may ultimately destroy this feature and in turn, cause the few number of remaining examples to fail and be forgotten. Apprenticeship programs should be created to train and educate a new group of craftsmen and craftswomen especially for the upkeep of Creole buildings.

The State Historic Preservation Office does have a few ideas of how to address these threats to preservation through a cultural development program. This program will administer state-wide programs to survey, preserve and provide technical assistance and education about Louisiana’s historic buildings and sites and archaeological sites and objects that convey the state’s rich heritage. The cultural development program will expand the state’s database of surveyed cultural resources, ensure the preservation of those resources, and use them to interpret Louisiana’s history and educate the public.

Program objectives include:

1. By 2013, 60% of the state’s parishes will be surveyed to identify historic properties.
2. By 2013, improve management of the record of the state’s archaeological resources and assets by providing on-line availability of 100% of the site forms and by curating 100% of the artefact collection to state and federal standards.
3. Assist in the restoration of 900 historic properties by 2013.
4. Between 2008 and 2013, increase promotion and awareness of Louisiana’s archaeological heritage through the regional and state archaeology programs by conducting 25 interpretive projects.

5. Provide approximately 100,000 citizens with information about archaeology between 2008 and 2013.

6. Create 1,000 new jobs by recruiting new businesses and supporting existing businesses in designated Main Street historic districts between 2008 and 2013.

7. Review 100% of the federally funded, licensed, or permitted projects submitted to assess their potential impact on historic and archaeological resources.

Hopefully, these efforts and ambitions at the state level will prove fruitful.

The Creole architectural tradition is one of many fascinating styles and materials, all of which deserve to be preserved for the benefit of Louisianan and architectural history. Despite loss of resources, loss of funds and lack of communication, the preservationists of Magnolia Mound plantation house, the Merieult townhouse and the Wells cottage all performed well conserving the materials of the buildings. The next step for the state of Louisiana, however, is to make sure that proper work like this continues with their help whether it is through funding, training new traditional experts or simply providing information to the public and organising the state’s preservation groups. Through cooperation, innovation and perhaps some legislation, the Creole buildings of Louisiana will stand for another 300 years.
Appendix

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Bibliography


Figures not by author.
Figure 1. State of Louisiana. *The Soropuru House.* [Online photograph]. Available from:

Figure 2. State of Louisiana. *Darby House.* [Online photograph]. Available from:

Figure 3. State of Louisiana. *Olivier Pigeonnier.* [Online photograph]. Available from:

Figure 4. State of Louisiana. *Gallier House.* [Online photograph]. Available from:

Figure 5. State of Louisiana. *Gallier House.* [Online photograph]. Available from:

Figure 41. State of Louisiana. *Figure 3: Creole Core Modules.* [Online illustration]. Available from: http://pdfhost.focus.nps.gov/docs/NRHP/Text/64500249.pdf. [Accessed 5 May 2011].
Figure 42. State of Louisiana. *Figure 4: The Evolution of Popular 18th Century Creole Plans.*

[Online illustration]. Available from:

Appendix E

SCHOOL OF ARCHITECTURE
EDINBURGH COLLEGE OF ART

LEVEL 6 MASTERS
SESSION 2010-11

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Derek Fraser
Diploma/Masters Coordinator